

Competency-Based Dynamic Curriculum for MD/ MS SIDDHA

(PRESCRIBED BY NCISM)

தொட்டனைத் தூறும் மணற்கேணி மாந்தர்க்குக் கற்றனைத் தூறும் அறிவு

Semester II
Applied Basics of Gunapadam Marunthakaviyal
(Materia Medica, Pharmaceutics and Clinical Pharmacy)
(SUBJECT CODE : SIDPG-AB-GMK)
(Applicable from 2025-26 batch, from the academic year 2025-26 onwards until further notification by NCISM)



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

PREFACE

Siddha Marunthakaviyal, the science of Materia medica, Pharmaceutics and Clinical Pharmacy in the Siddha tradition, is at the heart of this medical system, focusing on the preparation and formulation of medicines derived from herbal and herbo-mineral sources. The syllabus encompasses the following papers, each addressing a vital aspect of Siddha pharmaceuticals.

Applied Basics of Siddha Pharmaceutics: This paper, titled ‘Basic Principles of Siddha Marunthakaviyal’, has been framed to provide a comprehensive insight into the key concepts and methodologies of drug preparation in the Siddha tradition, equipping students with both theoretical and practical knowledge. A distinctive feature of this curriculum is the exploration of ‘Unique and Exclusive Techniques in Siddha Drug Preparation’, which are not only ancient but have evolved to suit modern-day needs without compromising their efficacy. This paper also delves into ‘Unique Siddha Drug Formulations’, highlighting the special formulations that set Siddha medicine apart from other healing systems.

Siddha Herbal, Herbo-Mineral and Animalia Formulations: This subject delves into the integration of herbs and minerals in medicine preparation, a hallmark of Siddha treatment.

Siddha Higher Order Medicines: Higher-order medicines, such as Kattu, kalangu, Guru Kuligai etc form a critical part of this paper. These medicines are designed to address complex and chronic health conditions, including degenerative diseases and immune disorders.

Industrial Pharmacy: This paper introduces students to the large-scale production of Siddha medicines, focusing on quality control, standardization, GMP (Good Manufacturing Practices), and the regulatory frameworks governing Siddha pharmaceuticals. By integrating the ancient wisdom of Siddha Materia Medica with modern pharmaceutical advancements, this syllabus is designed to create a robust platform for students to pursue careers in clinical practice, teaching, research and industrial pharmacy. Post Graduates of this program will be well-equipped to apply their knowledge in both traditional and modern contexts, contributing to the growing field of Siddha medicine and ensuring its relevance in today’s healthcare landscape.

INDEX

Summary & Credit Framework	4
Course Code and Name of Course	5
Table 1 : Course learning outcomes and mapped Program learning outcomes	5
Table 2 : Course contents (Modules- Credits and Notional Learning Hours)	7
Table 3 : Modules - Unit - Module Learning Objectives and Session Learning Objective- Notional Learning Hours- Domain-Level- TL Methods	34
Table 4 : Practical Training Activity	194
Table 5 : Experiential learning Activity	196
Table 6 : Assessment Summary: Assessment is subdivided in A to H points	198
6 A : Number of Papers and Marks Distribution	198
6 B : Scheme of Assessment (Formative and Summative Assessment)	198
6 C : Calculation Method for Modular Grade Points (MGP)	198
6 D : Semester Evaluation Methods for Semester Grade Point Average (SGPA)	199
6 E : Question Paper Pattern	199
6 F : Distribution for summative assessment (University examination)	200
6 G : Instruction for the paper setting & Blue Print for Summative assessment (University Examination)	202
6 H : Distribution of Practical Exam (University Examination)	203
Reference Books/ Resources	211
Abbreviations	214

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

-Swami Vivekananda

NCISM

(NATIONAL COMMISSION FOR INDIAN SYSTEM OF MEDICINE)

Competency-Based Dynamic Curriculum MD/ MS SIDDHA

Applied Basics of Gunapadam Marunthakaviyal (SIDPG-AB-GMK)

Summary & Credit Framework

Semester II

Module Number & Name	Credits	Notional Learning Hours	Maximum Marks of assessment of modules (Formative Assessment)
M1. Raw Drug	2	60	50
M2. Principles in drug classification (Charakku thathuvam) and Storage Practice	1	30	25
M3. Principles of Drug preparation	2	60	50
M4. Unique techniques in drug preparation	3	90	75
M5. Marunthukal and Upakaranangal	3	90	75
M6. Unique drug preparations	3	90	75
M7. Special concerns in Siddha Pharmaceutics	2	60	50
	16	480	400

Credit frame work

SIDPG-AB-GMK consists of 7 modules totaling 16 credits, which correspond to 480 Notional Learning Hours. Each credit comprises 30 hours of learner engagement, distributed across teaching, practical, and experiential learning in the ratio of 1:2:3. Accordingly, one credit includes 5 hours of teaching, 10 hours of practical training, 13 hours of experiential learning, and 2 hours allocated for modular assessment, which carries 25 marks.

Important Note: The User Manual MD/MS Siddha is a valuable resource that provides comprehensive details about the curriculum file. It will help you understand and implement the curriculum. Please read the User Manual before reading this curriculum file. The curriculum file has been thoroughly reviewed and verified for accuracy. However, if you find any discrepancies, please note that the contents related to the MSE should be considered authentic. In case of difficulty and questions regarding the curriculum, write to syllabus24sid@ncismindia.org.

Course Code and Name of Course

Course code	Name of Course
SIDPG-AB-GMK	Applied Basics of Gunapadam Marunthakaviyal (Materia Medica, Pharmaceutics and Clinical Pharmacy)

Table 1 : Course learning outcomes and mapped Program learning outcomes

CO No	A1 Course learning Outcomes (CO) SIDPG-AB-GMK At the end of the course SIDPG-AB-GMK, the students should be able to-	B1 Course learning Outcomes mapped with program learning outcomes.
CO1	Appraise and Appreciate the significance of fundamental principles in Siddha drugs, Sathru Mithru, Uppu Puli, and Vindhu Naatha charakkukal. Explore their practical applications in various Siddha formulations to enhance therapeutic outcomes.	PO1,PO5,PO6
CO2	Demonstrate the fundamentals of drug composition and apply appropriate preparation methods to ensure the safety and efficacy of Siddha medicines.	PO2,PO4,PO5
CO3	Implement specialized techniques for drug purification and medicine preparation with a focus on Vaippu Muraikal and apply skills in decoding complex formulations and interpreting traditional myths to innovative new therapeutic solutions.	PO8
CO4	Validate contemporary Siddha medicines, including higher-order formulations, using traditional instruments to assure high quality in Pakkuvam and Paagam ensuring ethical practices and regulatory standards in Siddha pharmaceuticals.	PO1,PO6
CO5	Categorise medicines systematically in relation to specific illnesses, including Chitka Marunthukal and Karpa Marunthukal. Validate proper dosages, suitable adjuvants and appropriate dietary regimens to adhere to Good Clinical Practices (GCP).	PO2,PO7
CO6	Demonstrate understanding of advanced pharmacological concepts, including pharmacodynamics, pharmacokinetics, pharmacogenomics, adverse drug reactions, and pharmacovigilance.	PO4,PO7
CO7	Demonstrate knowledge in various drug standardization methods and Quality control as per cGMP. Integrate traditional Siddha techniques with modern science to enhance pharmaceutical efficacy and safety of drugs. Utilize scale-up techniques for facilitating entrepreneurship for efficient manufacturing.	PO1,PO6
CO8	Stimulate teaching, presentation skills, and Research and Development aptitude to innovate novel Siddha formulations. To ensure that Siddha formulations meet	PO3,PO7,PO8

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

2A Module Number	2B Module & units	2C Number of Credits	Notional Learning Hours			
			2D Lectures	2E Practical Training	2F Experiential Learning including Modular Assessment	2G Total
1	M-1 Raw Drug This module covers the essential aspects of raw drugs in Siddha medicine, including their classification, collection, and authentication. It highlights purification techniques to enhance safety and efficacy, addresses alternatives for scarce materials, and identifies common adulterants and preservatives, providing a comprehensive understanding of their role in Siddha formulations. • M1U1 Introduction, Collection and Authentication 1.1.1.Introduction of raw drug & its classification 1.1.2.Source of drugs 1.1.3.Collection and Authentication of raw drugs • M1U2 Purification of raw materials 1.2.1.Pothu Suthi (General purification methods) 1.2.1.1.Neer vagai 1.2.1.2.Pal vagai 1.2.1.3.Nei vagai 1.2.1.4.Ver vagai 1.2.1.5.Kizhangu vagai	2	10	20	30	60

	1.2.1.6.Pattai vagai 1.2.1.7.Ilai vagai 1.2.1.8.Putpa vagai 1.2.2.Purification methods of Mooligai, Ulogam, Uparasam, Karasaram and Paashanam (Sigitcharathna deepam ennum vaithiya nool) 1.2.3.Special Purification techniques of raw materials mentioned in particular formulation 1.2.3.1.Pal vallathi 1.2.3.2.Swarna loga kantha chendhuram 1.2.3.3.Maldevi chendhuram • M1U3 Alternatives, Adulterants and Preservatives 1.3.1.Substitutes for rare and unavailable raw drugs 1.3.2. Adulterants – types and examples 1.3.3.Preservatives & its types 1.3.4.Natural Preservatives used in formulation 1.3.5.Permitted preservatives					
2	M-2 Principles in drug classification (Charakku thathuvam) and Storage Practice This module covers key principles in the classification of drugs (Charakkuthathuvam) in Siddha medicine, focusing on their systematic categorisation of drugs that are called Athicharakku, vatha muraikku uthavum charakkugal, vaithiya muraikku uthavum charakkugal, Nanavitha charakkugal. Additionally, the module emphasises good storage practices for raw drugs to maintain their quality, potency, and effectiveness in formulations.	1	5	10	15	30

• **M2U1 Athi charakku (Prodrug) & Vaithiya muraikku uthavum charakkugal (Drugs used in medicines)**

- 2.1.1.Types of Athicharakku
- 2.1.2.Types of Vaithiya muraikku uthavum charakku
 - 2.1.2.1.Marunthu charakku
 - 2.1.2.2.Rasayana charakku
 - 2.1.2.3.Mooligai charakku
 - 2.1.2.4.Kadai charakku

• **M2U2 Vatha muraikku uthavum charakkugal, Nanavitha charakkugal (Miscellaneous drugs)**

- 2.2.1.Types of Vatha muraikku uthavum charakkugal
 - 2.2.1.1.Aadum charakku
 - 2.2.1.2.Ada charakku
 - 2.2.1.3.Adi odum charakku
 - 2.2.1.4.Uppu puli charakku
 - 2.2.1.5.Vinthu natha charakku
 - 2.2.1.6.Sathru mithru charakku
 - 2.2.1.7.Pancha bootha charakku
 - 2.2.1.8. Kattu charakku
 - 2.2.1.9.Pathanga charakku
 - 2.2.1.10.Kattum charakku
- 2.2.2.Nanavitha charakkugal (Miscellaneous drugs)
 - 2.2.2.1.Padaana charakku
 - 2.2.2.2.Vasanai charakku
 - 2.2.2.3.Pugai charakku
 - 2.2.2.4.Kaara charakku
 - 2.2.2.5.Saara charakku
 - 2.2.2.6.Kaadi charakku

	2.2.2.7.Kalappu charakku 2.2.2.8.Poli charakku 2.2.2.9.Nattu charakku 2.2.2.10.Seemai charakku 2.2.2.11.Pala charakku 2.2.2.12.Sambara charakku • M2U3 Good storage practice 2.3.1.Preservation methods of Unique Raw drugs. 2.3.2.Appropriate Storage containers/ practices followed to preserve raw drugs and prepared medicines 2.3.3.Nature of drug storage vessels (Kalathin gunam)					
3	M-3 Principles of Drug preparation This module covers the principles of drug preparation in Siddha medicine, including ega mooligai prayogam, marana prayogam, muppu chunna prayogam, navaloga phashana maranigal, seyaneer prayogam, and dravaga prayogam. It also emphasizes adherence to the standards and guidelines for Siddha drug preparation to ensure safety and effectiveness. • M3U1 Ega mooligai prayogam and Marana prayogam	2	10	20	30	60

3.1.1.Introduction of Principles of Drug Preparation 3.1.2.Principle of Ega mooligai prayogam 3.1.3.Formulations pertaining to Ega mooligai prayogam 3.1.3.1.Thirikadugu chooranam 3.1.3.2.Panchadeepakini chooranam 3.1.3.3.Athimathura chooranam 3.1.3.4.Amukkara chooranam 3.1.3.5.Nilavagai chooranam 3.1.3.6.Chandamarutha chendhuram 3.1.3.7.Panchalavana parpam 3.1.3.8.Panchadeepakini ilakam 3.1.4.Principle of Maarana prayogam 3.1.5.Formulations pertaining to maarana prayogam 3.1.5.1.Thuvadasa loka maarana chendhuram 3.1.5.2.Loga maarana kantha chendhuram 3.1.5.3.Karuvanga chendhuram 3.1.5.4.Karuvanga parpam 3.1.5.5.Vanga chunnam 3.1.5.6.Genthi sembu 3.1.6.Navaloga navaphashana maaranigal					
---	--	--	--	--	--

• **M3U2 Muppu chunna prayogam and Seyaneer prayogam**

3.2.1.Principle & Uniqueness of Muppu Chunna prayogam and Seyaneer prayogam in drug preparation 3.2.2.Formulations pertaining to Muppu chunna prayogam 3.2.2.1. Uppu chunnam 3.2.2.2. Rasa chunnam 3.2.2.3. Thurusu chunnam 3.2.3.Formulations pertaining to Seyaneer prayogam 3.2.3.1.Thamira chendhuram					
---	--	--	--	--	--

	3.2.3.2.Thalaga parpam 3.2.3.3.Seena vanga parpam 3.2.3.4.Padikara parpam 3.2.3.5.Pancha sathu chendhuras- 3.2.3.6.Annabedhi chendhuras 3.2.3.7.Sodasa mathirai 3.2.3.8.Chandamarutham 3.2.3.9.Uyarntha raga aya chendhuras • M3U3 Dravaka prayokam 3.3.1.Importance of Dravakam and its application in drug preparation 3.3.2.Formulations pertaining to Dravaka prayogam 3.3.2.1.Linga karuppu 3.3.2.2.Kaaraloga chendhuras 3.3.2.3.Swarnaloga dravagam 3.3.2.4.Ayaveera chendhuras 3.3.2.5.Thani rasa chendhuras . 3.3.2.6.Sootha parpam 3.3.2.7.Aya thambira chendhuras					
4	M-4 Unique techniques in drug preparation This module explores unique traditional techniques in Siddha medicine, including Charakku Vega Vaithal, Karanool, Kayiru, and Thiri, used in the preparation of herbal formulations. It delves into the methods of preparing and applying Pavanai, Thean, Karuppu, and Seyaneer, highlighting their therapeutic significance. The process and importance of Vattu preparation are examined, along with the specialized technique of	3	15	30	45	90

Madakku, used to create concentrated formulations. Additionally, the module demonstrates simple yet effective traditional methods for formulating higher-order medicines, preserving the authenticity and potency of Siddha remedies.

• **M4U1 Charakku vega vaithal ,Kaaranoal , Thiri and Kayiru marunthugal**

4.1.1.Raw drugs pertaining to Charakku vegavaithal and its significance

4.1.1.1.Kombu

4.1.1.2.Thantham

4.1.1.3.Enbu

4.1.1.4.Sangu

4.1.1.5.Kilinal

4.1.1.6.Palagarai

4.1.1.7.Kulambu

4.1.2.Preparation,Significance & therapeutic uses of karanool

4.1.3.Definition and examples of Thiri

4.1.3.1.Punngalukku thiri

4.1.3.2.Kuzhipunn thiri

4.1.3.3.Vettilai manjal thiri

4.1.3.4.Sanni theera thiri

4.1.4.Definition and examples of Kayiru

4.1.4.1.Jeyaveera ranasingi kayiru

4.1.4.2.Kabam theera kayiru

4.1.4.3.Padalathi Mathirai

4.1.4.4.Chandra pragasa Mathirai

4.1.4.5.Amara Mathirai

• **M4U2 Pavanai, Thean, Karuppu and Seyaneer**

4.2.1.Definition & Formulations pertaining to Paavanai

4.2.1.1.Paavana nellikkai 4.2.1.2.Seeraga paavanai 4.2.1.3.Aya paavanai 4.2.1.4.Navatchara paavanai 4.2.1.5.Veera paavanai 4.2.1.6.Balarasa paavanai 4.2.1.7.Kandhaga paavanai 4.2.1.8.Pirandai paavanai 4.2.1.9.Linga paavanai 4.2.2.Definition & Formulations pertaining to thean 4.2.2.1.Poondur thean 4.2.2.2.Karisalai thean 4.2.2.3.Meni thean 4.2.2.4.Vengara thean 4.2.3.Definition & Formulations pertaining to Karuppu 4.2.3.1.Lavana karuppu 4.2.3.2.Aya karuppu 4.2.3.3.Thalaga karuppu 4.2.3.4.Poora karuppu 4.2.3.5.Veera karuppu 4.2.3.6.Vaala karuppu 4.2.4.Definition & Formulations pertaining to seyaneer 4.2.4.1.Kowsai seyaneer 4.2.4.2.Kaadi seyaneer 4.2.4.3.Andu seyaneer 4.2.4.4.Vazhaipazha seyaneer					
---	--	--	--	--	--

• **M4U3 Vattu & Madakku**

4.3.1.Definition & Formulations pertaining to vattu					
---	--	--	--	--	--

4.3.1.1.Inji vattru
4.3.1.2.Santhanathi vattru
4.3.1.3.Thirikadugu vattru
4.3.1.4.Karungkozhi vattru
4.3.1.5.Vembinpattai vattru
4.3.1.6.Kombarakku vattru
4.3.2.Definition & Formulations pertaining to Madakku
4.3.2.1.Anda Dravagam
4.3.2.2.Maha guru Dravagam
4.3.2.3.Oma Dravagam
4.3.2.4.Sooda Dravagam
4.3.2.5.Vediyuppu Dravagam
4.3.2.6.Sitramutti madakku thailam
4.3.2.7.Karisalai madakku thailam
4.3.2.8.Vediyuppu madakku seyaneer

• **M4U4 Traditional simple methods for higher order medicine preparation**

4.4.1.Formulations prepared by traditional simple methods
4.4.1.1.Sootchuma bedhi mezhugu
4.4.1.2.Kaara lavana parpam
4.4.1.3.Padikaara chendhuran
4.4.1.4.Aya parpam
4.4.1.5.Linga mezhugu
4.4.1.6.Padiga poonaga chendhuran
4.4.1.7.Vanga parpam
4.4.1.8.Rasa chenduram
4.4.1.9.Navanatha chenduram
4.4.1.10.Kanthaga mezhugu
4.4.1.11.Sugapirasavathirkku linga chendhuran

5	M-5 Marunthukal and Upakaranangal This module covers the definition, classification, and preparation of <i>Marunthu</i> (medicines), including formulations related to <i>Ull Marunthu</i> (internal medicines) and <i>Pura Marunthu</i> (external medicines). It also explores the traditional instruments used in drug preparation. Additionally, the module addresses the purification processes essential for ensuring the effectiveness and safety of prepared medicines. • M5U1 Definition, types of Ul marunthukal and its preparations 5.1.1. Definition of Marunthu 5.1.2. Marunthu pakkuva gunam 5.1.3. Marupaga gunam 5.1.4. Maruthunnum kalam 5.1.5. Marunthugalin seerana kalam 5.1.6. Diet to administer after medication (Vayilidum vasthugal) 5.1.7. Marunthin ethir vilaivugal 5.1.8. Ul marunthukal 5.1.9. Chaaru 5.1.9.1. Perumpadu – charu 5.1.9.2. Neeradaippu – charu 5.1.9.3. Siruneeril raktham kanuthal – charu 5.1.9.4. Vippuruthi – charu 5.1.9.5. Neererivu - charu 5.1.10. Kashayam 5.1.11. Types of kashayam 5.1.12. Kashaya panda ilakkanam 5.1.13. Principle/rule of boiling kashayam	3	15	30	45	90

5.1.14.Principle/rule of consumption of kashayam					
5.1.15.Formulations pertaining to Kashayam					
5.1.15.1.Vaivu – kudineer					
5.1.15.2.Ushna vayitru vali – kudineer					
5.1.15.3.Meghavayuvirkku kiyazham					
5.1.15.4.Andavayuvirkku kiyazham					
5.1.15.5.Ushna bethikku kiyazham					
5.1.15.6.Ratha kakkalukku kiyazham					
5.1.15.7.Prasivitha sreekalukku alukku velipada kiyazham					
5.1.15.8.Pancha mooli kiyazham					
5.1.15.9.Veppilai karukku kiyazham					
5.1.15.10.Nayuruvi karukku kiyazham					
5.1.16.Adai					
5.1.16.1.Moola vayu adai					
5.1.16.2.Moola kiraniku adai					
5.1.16.3.Irumal theera adai					
5.1.17.Chooranam					
5.1.18.Choorana vithi (Principle/rule)					
5.1.19.Principle/rule of preparation of chooranam using drug containing oil content					
5.1.20.Formulations pertaining to chooranam					
5.1.20.1.Naagara singathi chooranam					
5.1.20.2.Karisalankanni chooranam					
5.1.20.3.Parpodi chooranam					
5.1.20.4.Kabangusa chooranam					
5.1.20.5.Chandira kanthi chooranam					
5.1.20.6.Poonaga chooranam					
5.1.20.7.Kaichukatti chooranam					
5.1.20.8.Senkottai chooranam					
5.1.21.Pittu					
5.1.21.1.Moolakirani pittu					
5.1.21.2.Vatham theera pittu					

5.1.22.Vadagam					
5.1.22.1.Karumeghathirkku seeraga vadagam					
5.1.23.Kirutham or Nei					
5.1.24.Quantity of nei in formulation					
5.1.25.Consistency of nei					
5.1.26.Formulations pertaining to nei					
5.1.26.1.Santhanathi kirutham					
5.1.26.2.Seenthil kirutham					
5.1.26.3.Seviya kirutham					
5.1.26.4.Madhulai kirutham					
5.1.26.5.Megarajanga kirutham					
5.1.27.Rasayanam					
5.1.27.1.Moolanoikku kadukkai rasayanam					
5.1.27.2.Shayakulanthaga rasayanam					
5.1.27.3.Konrai rasayanam					
5.1.27.4.Kuppaimeni rasayanam					
5.1.27.5.Inji rasayanam					
5.1.28.Ilakam					
5.1.29.Quantity of sugar, honey,ghee					
5.1.30.Explanation of paagu patham (Thanthu paga vilakkam)					
5.1.31.Formulations pertaining to ilakam					
5.1.31.1.Milagu ilakam					
5.1.31.2.Inji ilakam					
5.1.31.3.Karpoorathy ilakam					
5.1.31.4.Sathapala ilakam					
5.1.32.Thailam					
5.1.33.Principle/rule of preparation of kashayam added in thailam					
5.1.34.Principle/rule of adding milk in karkam					
5.1.35.Special principle of mudi thailam					
5.1.36.Consistency of thailam and its uses					
5.1.37.Purification of thailam					
5.1.38.Vessel for thailam process					

5.1.39.Firewood for thailam					
5.1.40.Source of thailam (Thaila pirappu vagai)					
5.1.41.Types of thailam based on application					
5.1.42.Principle to preparation of thailam					
5.1.43.Efficacy & potency of thailam					
5.1.44.Characters of thailam					
5.1.45.Principle to add milk and water in thailam					
5.1.46.Principle to ground karkam					
5.1.47.Pathiram pazhagum vithi					
5.1.48.Karuvigal for specific actions (Thozhilkuriya karuvium, Thailam thuzhavum karuvi)					
5.1.49.Thaila paga vithi					
5.1.50.Vadikkum pathira ilakanam					
5.1.51.Thailam vadikkum ilakanam					
5.1.52.Purification of thailam					
5.1.53.Siriya thaila paga vithi.					
5.1.54.Formulations pertaining to thailam					
5.1.54.1.Nun puzhu ennai					
5.1.54.2.Andaviyathi – ennai					
5.1.54.3.Vaipunn soolai – ennai					
5.1.54.4.Araiappu – ennai					
5.1.54.5.Koozhpandathu ennai					
5.1.54.6.Puraigal – thailam					
5.1.54.7.Mega Sanjeevi ennai					
5.1.54.8.Karisalai ennai					
5.1.54.9.Genthaga thailam					
5.1.54.10.Malattu kanthaga thailam					
5.1.54.11.Agathiyar Sanjeevi ennai					
5.1.55.Maathirai					
5.1.56.Grinding method					
5.1.57.Consistency of rolling					
5.1.58.Stage to add aromatic substances					

5.1.59.Munn pin serkka vendiyavai					
5.1.60.Formulations pertaining to mathirai					
5.1.60.1.Ema Thanda kuligai					
5.1.60.2.Bala viresana kuligai					
5.1.60.3. Sinthamani kuligai					
5.1.60.4.Vatha sanni kuligai					
5.1.60.5.Anandha bairava mathirai					
5.1.60.6.Nabi mathirai					
5.1.60.7.Amurthathi kuligai					
5.1.60.8.Lakshmi Narayana maathirai					
5.1.60.9.Ayathanga maathirai					
5.1.60.10.Thamira boopathy kuligai					
5.1.60.11.Kadikkara maathirai					
5.1.60.12.Veera kuligai					
5.1.60.13.Sagala mantha kuligai					
5.1.60.14.Agathiyar kadugurokini maathirai					
5.1.60.15.Kodasuzhi maathirai					
5.1.61.Thiravagam					
5.1.62.Amount of end product estimation of thiravagam					
6.1.63.Thiravagam iranga kuri					
6.1.64.Formulations Pertaining to Thiravagam					
6.1.64.1.Thasa lavana thiravagam					
6.1.64.2.Ashtanga thiravagam					
6.1.64.3.Kanthaga thiravagam					
5.1.65.Mezhugu					
5.1.66.Method of consumption of mezhugu					
5.1.67.Effects of chronic consumption of mezhugu					
5.1.68.Formulations pertaining to mezhugu					
5.1.68.1.Gunma bedhi mezhugu					
5.1.68.2.Vishamirtha mezhugu					
5.1.68.3.Thanga linga mezhugu					
5.1.68.4.Poonaga mezhugu					

5.1.68.5.Kantha mezhugu					
5.1.68.6.Akkarakara mezhugu					
5.1.69.Pathangam					
5.1.70.Formulations pertaining to Pathangam					
5.1.70.1.Kummati kai pathangam					
5.1.70.2.Veera rasa pathangam					
5.1.70.3.Kalanthaga Gowri pathangam					
5.1.70.4.Thalaga pathangam					
5.1.71.Chendhuram					
5.1.72.Formulations pertaining to Chendhuram					
5.1.72.1.Vediyuppu chendhuram					
5.1.72.2.Genthithara chendhuram					
5.1.72.3.Vanga arithara chendhuram					
5.1.72.4.Ekku Suvama chendhuram					
5.1.72.5.Kadikara linga chendhuram					
5.1.72.6.Pancha sathu chendhuram					
5.1.73.Parpam					
5.1.74.Method of plaster (seelai)					
5.1.75.Principle of pudam					
5.1.76.Ill effects due to increase or decrease of cow dung cakes (varatti)					
5.1.77.Neertrinagalin gunam					
5.1.78.Formulations pertaining to parpam					
5.1.78.1.Suram – Arithara parpam					
5.1.78.2.Vedikara silasathu parpam					
5.1.78.3.Kara vediyuppu parpam					
5.1.78.4.Naaga sangu parpam					
5.1.78.5Thiri vanga parpam					
5.1.78.6.Kasakudori parpam					
5.1.78.7.Poonaga parpam					
5.1.78.8.Kanthaga paga parpam					
5.1.78.9.Genthi poora parpam					
5.1.78.10.Padikara parpam					

5.1.79.Kattu
5.1.79.1.Veera kattu
5.1.79.2.Linga kattu
5.1.79.3.Poora kattu
5.1.80.Kalangu
5.1.80.1.Aya kalangu
5.1.80.2.Sembu Kalangu
5.1.81.Chunnam
5.1.81.1.Sara chunnam
5.1.81.2.Genthaga chunnam
5.1.81.3.Puli chunnam
5.1.81.4.Pashana chunnam
5.1.81.5.Pavazha chunnam
5.1.81.6.Naga chunnam

• **M5U2 Types of Veli marunthukal and its preparations**

5.2.1.Kattu
5.2.1.1.Moola mulai – kattu
5.2.1.2.Notchi kattu
5.2.2.Patru
5.2.2.1.Araiappu kattikku patru
5.2.2.2.Asuvaganthi patru
5.2.3.Otradam
5.2.3.1.Thimirvatha otradam
5.2.3.2.Puliyiliai otradam
5.2.4.Poochu
5.2.4.1.Aviraiyathi Poochu
5.2.4.2.Kuntri Poochu

5.2.4.3.Vembu Poochu					
5.2.5.Vethu					
5.2.5.1.Thippili Vethu					
5.2.5.2.Veppampattai Vethu					
5.2.6.Pottanam					
5.2.6.1.Karunjeeraga Pottanam					
5.2.6.2.Sanni vagai Pottanam					
5.2.7.Pugai					
5.2.7.1.Vikkal – pugai					
5.2.7.2.Ranangal – Pugai					
5.2.7.3.Sanni – Pugai					
5.2.7.4.Putru pugai					
5.2.8.Mai					
5.2.8.1.Kannil neer vadithal – Mai					
5.2.8.2.Puzhu vettuku mai					
5.2.8.3.Kadukkai mai					
5.2.9.Podi Thimirthal					
5.2.9.1.Karpoora Podi Thimirthal					
5.2.10.Kalikkam					
5.2.10.1.Kanpadalam – Kalikka mathirai					
5.2.10.2.Sanni kalikkam					
5.2.11.Nasiyam					
5.2.11.1.Ottrai thalai vali – Nasiyam					
5.2.11.2.Peenisam – Nasiyam					
5.2.11.3.Sura – nasiyam					
5.2.11.4.Soothaga sanni vali – nasiyam					
5.2.11.5.Neelakasa nasiyam					
5.2.12.Nasika paranam					
5.2.12.1.Nasika parana mathirai					
5.2.12.2.Sundai ver podi					
5.2.13.Kalimbu					
5.2.13.1.Pun – Kalimbu.					

5.2.13.2.Mega virana kalimbu

5.2.14.Seelai

5.2.14.1.Thurusu Seelai

5.2.14.2.Vilampisin Seelai

5.2.15.Neer

5.2.15.1.Manjal Neer

5.2.15.2.Kulirintha Karu Neer

5.2.16.Varthi

5.2.16.1.Amanakku Varthi

5.2.16.2.Athipattai Varthi

5.2.17.Pasai

5.2.17.1.Kukil Pasai

5.2.17.2.Rasa Chendoora Pasai

5.2.17.3.Sirangu Pasai

5.2.18.Kali

5.2.18.1.Karuvel Kali

5.2.19.Podi

5.2.19.1.Palnoi – palpodi

5.2.19.2.Avarai vithu podi

5.2.20.Karam

5.2.20.1.Saveera Karam

5.2.20.2.Manjal karam

• **M5U3 Traditional instrumentation for in house pharmacy**

5.3.1.Iyanthiragal (Instruments)

5.3.1.1.Thulayanthiram

5.3.1.2.Thooba yanthiram

5.3.1.3.Mezhugu thaila karuvi

5.3.1.4.Kuzhi thaila karuvi
5.3.1.5.Kuppi puda thaila karuvi
5.3.1.6.Sudar thaila karuvi
5.3.1.7.Valuka yanthiram
5.3.1.8.Oothu yanthiram
5.3.1.9.Theeneer thiravaga valai
5.3.1.10.Madakku valai yanthiram
5.3.1.11.Theeneer valai yanthiram (Another one)
5.3.1.12.Kuraintha alavu thiravagam edukkum karuvi
5.3.1.13.Pathanga karuvi
5.3.1.14.Sambirani pathagam,thailam edukkum karuvi
5.3.2.Karuvigal (Equipment)
5.3.2.1.Karuvigal to be placed beside the stove
5.3.2.2.Matkalavilakanam
5.3.2.3.Chattikalin ilakanam
5.3.2.4.Kunthanai ilakanam
5.3.2.5.Pulaminaki ilakanam
5.3.2.6.Ural, ulakkai types
5.3.2.7.Sillidai ilakanam
5.3.2.8.Ammi, kuzhavi types
5.3.2.9.Viragu types
5.3.2.10.Puriyanai vagai or purimanam
5.3.2.11.Pidiseelai types & patragatri
5.3.2.12.Vadikaruvigalin betham
5.3.2.13.Moozhi ilakam or Agapai
5.3.2.14.Moozhi vigarpam

• **M5U4 Purification of prepared medicines**

5.4.1.Amirtha Karanam

	5.4.2. Formulations pertaining to the purification of prepared medicines 5.4.2.1. Baskara lavan 5.4.2.2. Lasunathi kirutham 5.4.2.3. Bairava mezhugu 5.4.2.4. Pancha sootha mezhugu 5.4.2.5. Bringhamalaga thylam 5.4.2.6. Keezhvainelli thylam					
6	M-6 Unique drug preparations This module explores the principles and formulations of Muppu and Rasavatham, with a focus on the preparation and applications of Kaadi and Amuri Uppu, including formulations under Pachai Vettu. It also covers extraction techniques for Sarkkarai (sugar) and Maavu (flour), Theeneer ennai, emphasizing their medicinal properties and significance in traditional practices. • M6U1 Muppu and Rasavatham 6.1.1. Types and its importance of Muppu 6.1.1.2. Aadhi uppu 6.1.1.3. Samaadhi uppu 6.1.2. Formulations pertaining to Muppu 6.1.2.1. Andakkal chunnam 6.1.2.2. Konganar muppu seyaneer 6.1.3. Rasavatham and its importance 6.1.4. Formulations pertaining to Rasavatham 6.1.4.1. Thurusu guru 6.1.4.2. Linga guru 6.1.4.3. Seyarkai pon	3	15	30	45	90

6.1.4.4.Seyarkai velli
6.1.4.5.Soruba kuligai

• **M6U2 Kaadi and Amuriuppu**

6.2.1.Other names of Kaadi
6.2.2.Method of preparation of Kaadi and its significance.
6.2.3.Kadi karametral
6.2.4.Other types of Kaadi enlisted
6.2.4.1.Seemai thiratchai kaadi
6.2.4.2.Pazha Kaadi
6.2.4.3.Arisi Kaadi
6.2.4.4.Kazhu Kaadi
6.2.4.5.Sarkkarai Kaadi
6.2.4.6.Kadalai Kaadi
6.2.4.7.Echangaadi
6.2.4.8.Panangkaadi
6.2.4.9.Thenangkaadi
6.2.5.Formulations listed in the subtopic prepared by using Kaadi
6.2.5.1.Mandoora paavanai
6.2.5.2.Thamira parpam
6.2.5.3.Sindhathi legiyam
6.2.5.4.Inji kaadi
6.2.5.5.Kaadi dravagam
6.2.5.6.Kaadi neer Pakkuvam
6.2.6.Definition, Method of preparation of Amuriuppu and its uses

• **M6U3 Pachai Vettu Marunthukal**

6.3.1.Pachai vettu marunthugal enlisted

6.3.1.1.Kantha chooranam					
6.3.1.2.Vatharatchasa Chooranam					
6.3.1.3.Siddharasa chooranam					
6.3.1.4.Kushtathukku Neeradimuthu vadagam					
6.3.1.5.Rasa vennai					
6.3.1.6.Sagala ranangkalukkum thailam					
6.3.1.7.Vanga rasa mathirai					
6.3.1.8.Kunmathirkku kanthathi mathirai					
6.3.1.9.Sanni sura mathirai					
6.3.1.10.Sootha Vallathi Urundai					
6.3.1.11.Vanga mathirai					
6.3.1.12.Sarvasura vairavam					
6.3.1.13.Sanjeevi mathirai					
6.3.1.14.Balarasa urundai					
6.3.1.15.Valairasa mezhugu					
6.3.1.16.Rasa karpooa mezhugu					
6.3.1.17.Veera Kuzhambu					
6.3.1.18.Lagurasa Chendhuras					
6.3.1.19.Jeevakini linga chendhuras					
6.3.1.20.Neela kanda rasam					
6.3.1.21.Linga swarna Chendhuras					
6.3.1.22.Pooras Chendhuras					
6.3.1.23.Anjukaruppu					
6.3.1.24.Veera chunnam					
6.3.1.25.Thavakini parpam					
6.3.1.26.Eri ranathirkku karutha kulirintha neer					
6.3.1.27.Vaiputirirkku vellai kara seelai					
6.3.1.28.Korukku punnirkku plasthiri					
6.3.1.29.Linga kalimbu					

	• M6U4 Sarkkarai , Maavu, Theeneer ennai and Kuzhi thylam 6.4.1.Traditional extraction methods 6.4.2.Maavu 6.4.2.1.Koovai kizhangu maavu 6.4.3.Sarkarai 6.4.3.1.Seenthil sarkarai 6.4.3.2.Iluppai poo sarkarai 6.4.4.Mooligaigalin samuthaya gunam (Sathu) 6.4.5.Theeneer ennai and Kuzhi thylam 6.4.5.1.Ilavanga thailam 6.4.5.2.Ilavanga pattai thailam 6.4.5.3.Ilavanga pathri thailam 6.4.5.4.Kattu karuvapattai thailam 6.4.5.5.Kavattampul thailam 6.4.5.6.Oma thailam 6.4.5.7.Kichili pazha thailam 6.4.5.8.Pudina thailam 6.4.5.9.Sathakuppai ennai 6.4.5.10.Chandana thailam 6.4.5.11.Jathikkai thailam 6.4.5.12.Shamanthi poo thailam 6.4.5.13.Sirattai thylam 6.4.5.14.Karunjeeraga kuzhi thylam					
7	M-7 Special concerns in Siddha Pharmaceutics This module focuses on essential precautionary measures during various stages of medicine preparation. It covers the distinction between <i>Pakkuva Marunthukal</i> and <i>Apakkuva Marunthukal</i> , along with guidelines for determining accurate dosage	2	10	20	30	60

(*Alavu*) based on factors like age, weight, and medicine potency. The role of adjuvants (*Anubanam*) in enhancing efficacy and stability is discussed, alongside the importance of dietary restrictions (*Pathiyam*) to support treatment and avoid interference with medication. Additionally, the module addresses common myths, offering evidence-based clarity on traditional and modern practices, with insights drawn from *Suvadi* (manuscriptology) to preserve and apply ancient wisdom effectively.

- **M7U1 Precautionary measures in Siddha Pharmaceuticals**

- 7.1.1. Precautionary measures followed in drug collection practices for Schedule E drugs

- 7.1.2. Precautionary measures followed in purification process

- 7.1.2.1. Kanthaga suthi

- 7.1.2.2. Linga suthi

- 7.1.2.3. Naga suthi

- 7.1.2.4. Rasa suthi

- 7.1.2.5. Veera suthi

- 7.1.2.6. Abragha suthi

- 7.1.2.7. Aya suthi (Charakku suthi muraigal)

- 7.1.3. Precautionary measures followed in preparation process

- 7.1.3.1. Agasthiyar kuzhambu

- 7.1.3.2. Sudar thailam formulations

- 7.1.3.3. Ayaveera chendhuram

- 7.1.3.4. Dravagam formulations

- 7.1.3.5. Virana sanjeevi thailam

- 7.1.4. Precautionary measures followed in dispensing methods

- 7.1.4.1. Moola kudora thailam

- 7.1.4.2. Poora ennai

- 7.1.4.3. Chandra kala lepam

- **M7U2 Pakkuva and Apakkuva marunthukal**

7.2.1.Marunthu pagam 7.2.2.Maru pagam 7.2.3.Method of conversion of Apakkuva marunthukal to pakkuvamarunthukal for the formulations enlisted 7.2.3.1.Vanga chunnam 7.2.3.2.Aya thanga chendhura 7.2.3.3.Narayana chendhura 7.2.3.4.Ayakantha chandamarutha chendhura 7.2.3.5.Ekku chendhura 7.2.4.Thodam and parikaaram caused by Apakkuva marunthukal enlisted 7.2.4.1.Kaantha parpam &Chendhura 7.2.4.2.Sembu parpam 7.2.4.3.Naga parpam 7.2.4.4.Sathu parpam 7.2.4.5.Vanga parpam 7.2.4.6.Thanga parpam 7.2.4.7.Velli parpam 7.2.4.8.Velvanga parpam 7.2.4.9.Aya parpam & chendura					
--	--	--	--	--	--

• **M7U3 Alavu, Anubanam and Pathiyam**

7.3.1.General dosage guidelines 7.3.2.Calculation of dosage in standard metric measures 7.3.3.Adjuvants and Vehicle and its importance 7.3.4.Pathiyam and Maru pathiyam 7.3.5.Itcha pathiyam 7.3.6.Kadum pathiyam 7.3.7.Miga Kadum pathiyam 7.3.8.Roga pathiyam 7.3.8.1.Vatha					
--	--	--	--	--	--

7.3.8.2.Pitha
7.3.8.3.Kaba
7.3.8.4.Athisaram
7.3.8.5.Moolam
7.3.8.6.Suram
7.3.9.Bogar pathiya murai
7.3.10.Marunthunum pothu apathiyam & Pathiya pathartham
7.3.11.Marunthirkana pathiyam for
7.3.11.1.Aya chendhura
7.3.11.2.Kantha chendhura
7.3.11.3.Tambira parpam
7.3.12.Rasa Pathiyam
7.3.13.Parangipattai Pathiyam

• **M7U4 Decoding, Palm manuscript, and Myths**

7.4.1.Decoding Classic Texts and its importance
7.4.2.Common myths surrounding Siddha practices (e.g, alchemy, immortality, etc.).
7.4.3.Palm Manuscript
7.4.3.1.Introduction of Suvadi Iyal
7.4.3.2.Origin of letters (Ezuthukkal)

- Vattu Ezuthukkal
- Kirantha Ezuthukkal
- Thamizhi Ezuthukkal

7.4.3.3.Types of Suvadi
7.4.3.4.Moola padal, padal verupadugal
7.4.4.Yapilakanam
7.4.4.1.Pothu ilakanam
7.4.4.2.Venba ilakanam

	7.4.4.3.Viruthappa ilakanam 7.4.5.Cataloging of Suvadi 7.4.6.Source of Suvadi 7.4.7.Maruthuva suvadigalum pathippugalum					
		16	80	160	240	480

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

3A Course Outcome	3B Learning Objective (At the end of the (lecture/practical training /experiential learning) session, the students should be able to)	3C Notional Learning Hours	3D Lecture/ Practical Training/ Experiential Learning	3E Domain/ Sub Domain	3F Level (Does/Shows how/Knows how/Know)	3G Teaching Learning Methods
Module 1 : Raw Drug						
Module Learning Objectives (At the end of the module, the students should be able to)						
Differentiate raw drugs based on their origin (plant, mineral, or animal). Identify the best practices and timing for harvesting raw materials. Apply methods to verify the authenticity of raw materials using traditional and modern techniques. Demonstrate the methods used to purify raw materials for enhanced safety and efficacy. Identify substitutes for scarce materials and detect common adulterants in raw drugs. Discuss about preservatives						
Unit 1 Introduction, Collection and Authentication						
1.1.1.Introduction of raw drug & its classification 1.1.2.Source of drugs 1.1.3.Collection and Authentication of raw drugs						
References: 1,26,53						
3A	3B	3C	3D	3E	3F	3G

CO1,CO2,CO3 ,CO4,CO8	1.Describe raw drugs and classify them based on established systems. 2.Appraise the source of raw drugs in terms of origin and relevance. 3.Examine the organoleptic characteristics of raw drugs and determine the suitability of their medicinal parts. 4.Assess the various methods of raw drug collection for their efficiency and appropriateness. 5.Validate the methods used to authenticate a raw drug against traditional and modern benchmarks. 6.Justify the need for quality control and standardization in the usage of raw drugs. 7.Evaluate the influence of environmental factors on the quality of raw drugs.	4	Lecture	CE	Knows-how	BL,IBL,L _VC,L&G D
CO1,CO2,CO3 ,CO4,CO8	1.Demonstrate and validate the authentication techniques for the enlisted Mooligai raw drugs using organoleptic, macroscopic, and microscopic methods. 2.Demonstrate and standardize the authentication of the enlisted Thathu raw drugs through traditional and modern identification techniques. 3.Demonstrate and justify the authentication of the enlisted Jeevam raw drugs, correlating morphological features with classical texts.	8	Practical Training 1.1	PSY-ADT	Shows-how	C_L,DL
CO1,CO2,CO3 ,CO4,CO8	1. Assemble the traditional cultivation setup for Poonagam, ensuring precision and adherence to classical protocols. 2. Operate the collection of Ayam in a specified area, ensuring proper identification and handling of the raw material. 3. Manipulate the collection of Moosambaram using the specified methods mentioned in the texts, with an emphasis on accuracy and documentation. 4. Calibrate the collection of Erukkampal using traditional methods, ensuring authenticity and quality in the raw material. 5. Execute the collection of Kadalai Pulippu using the specified collection techniques as per classical guidelines. 6. Handle the collection of Vazhai Kizhangu Neer with the specified methods, focusing on correct timing, technique, and application.	10	Experiential-Learning 1.1	PSY-MEC	Does	EDU,C_L ,FV
Unit 2 Purification of raw materials						

1.2.1.Pothu Suthi (General purification methods)

1.2.1.1.Neer vagai

1.2.1.2.Pal vagai

1.2.1.3.Nei vagai

1.2.1.4.Ver vagai

1.2.1.5.Kizhangu vagai

1.2.1.6.Pattai vagai

1.2.1.7.Ilai vagai

1.2.1.8.Putpa vagai

1.2.2.Purification methods of Mooligai, Ulogam, Uparasam, Karasaram and Paashanam (Sigitcharathna deepam ennum vaithiya nool)

1.2.3.Special Purification techniques of raw materials mentioned in particular formulation

1.2.3.1.Pal vallathi

1.2.3.2.Swarna loga kantha chendhuram

1.2.3.3.Maldevi chendhuram

References: 7,22,38

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Analyze the reason for the purification of raw drugs. 2. Examine the purification methods of the raw drugs enlisted. 3. Differentiate the purification process of the enlisted Mooligai, Ulogam, Uparasam, Karasaram, and Paashanam. 4. Investigate the special purification techniques of raw materials mentioned in particular formulations. 5. Compare the differences in raw drugs before and after purification to authenticate the changes.	4	Lecture	CAN	Knows-how	BL,L&PP T ,DIS,FC
CO1,CO2,CO3 ,CO4,CO8	1. Demonstrate and standardize the purification procedure of Lingam as per classical Siddha texts.	8	Practical Training 1.2	PSY- MEC	Shows-how	Mnt,DL

	2. Demonstrate and validate the traditional purification method of Sivathai, ensuring safety and efficacy for therapeutic use. 3. Execute and replicate the Kandhaga Suthi process as described in Amirtha Kandhi Kukkil Valladhi, with attention to each procedural step. 4. Perform and interpret the Abragha Suthi process as outlined in the preparation of Abraha Chendhuram, ensuring consistency with classical guidelines.					
CO1,CO2,CO3,CO4,CO8	1. Operate the purification process of Ayam, ensuring precision and adherence to classical purification methods. 2. Assemble the setup for the purification of Ettikottai, ensuring consistency with traditional protocols and assessing quality control. 3. Manipulate the purification of Sangu Suthi, as mentioned in Sangu Parpam, ensuring adherence to the specified purification techniques. 4. Operate the purification process of Serangottai Suthi, as outlined in Neeradimuthu Vallathi, ensuring quality and consistency.	10	Experiential-Learning 1.2	PSY-MEC	Does	PrBL,RP

Unit 3 Alternatives, Adulterants and Preservatives

- 1.3.1.Substitutes for rare and unavailable raw drugs
- 1.3.2. Adulterants – types and examples
- 1.3.3.Preservatives & its types
- 1.3.4.Natural Preservatives used in formulation
- 1.3.5.Permitted preservatives

References: 2,3

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

CO1,CO2,CO3 ,CO4,CO8	1. Differentiate substitutes for rare and unavailable raw drugs and analyze their roles in formulations. 2. Examine the concept of adulterants, categorize the types with examples, and analyze the disadvantages associated with them. 3. Analyze the concept of preservatives, differentiate between their types, and break down the list of permitted preservatives. 4. Organize and analyze the natural preservatives used in Siddha formulations. 5. Explain the mechanism of action of preservatives in inhibiting microbial growth and compare the effectiveness of natural and synthetic preservatives.	2	Lecture	CAN	Knows-how	BL,EDU
CO1,CO2,CO3 ,CO4,CO8	1. Demonstrate the preparation of substitutes for extinct or unavailable raw drugs, adhering to classical principles and ensuring therapeutic consistency. 2. Execute the identification and application of appropriate substitutes for extinct raw drugs and submit the document 3. Perform structured organoleptic comparisons between original raw drugs and adulterants to distinguish critical sensory differences.	4	Practical Training 1.3	PSY-MEC	Shows-how	PL,IBL,D L
CO1,CO2,CO3 ,CO4,CO8	1. Value the ethical distinction between intentional and unintentional adulteration, and appreciate the importance of using reliable detection methods to ensure product integrity. 2. Acknowledge the importance of regulatory laws that protect public health from adulteration in traditional medicines.. 3. Acknowledge the role of natural preservatives in maintaining drug quality, and show commitment to their correct use in Siddha formulations.	6	Experiential-Learning 1.3	AFT-VAL	Does	FC,DA,P BL

Practical Training Activity

Practical Training 1.1 : 1. Authentication of raw drugs

Total activity hours - 8 Hours

1.Authentication of raw drugs - 8 Hours

a. Herbal drugs

1. Kodiveli ver
2. Parangipattai
3. Nannari ver
4. Sirunaga Poo
5. Vempadam pattai
6. Seenthil thandu
7. Kadukkai
8. Sathakuppai vithai
9. Mavilinga pattai
10. Lavanga pathiri
- b. Thathu drugs
 1. Indhuppu
 2. Silasathu
 3. Annabedhi
 4. Abragam
 5. Gandhagam
- c. Jeeva drugs
 1. Sangu
 2. Muthucippi
 3. Nathai odu

Instruction to teacher - Introduction and demonstration (1 Hour)

The teacher will provide an overview of the authentication of raw drugs, which is essential for ensuring the quality, identity, and purity of herbal or natural products used in pharmaceutical formulations. It involves demonstrating the raw drug's authenticity through various techniques such as visual inspection, microscopic examination, chemical analysis and comparison with standard references.

Activity :1 (6 hours)

i.Organoleptic Evaluation:

This step relies on sensory evaluation, examining attributes like color, texture, odor, and taste. It gives an initial impression of the material's quality and can help identify familiar substances.

ii.Taxonomic Identification:

A systematic classification of the material to determine its scientific identity and botanical name, based on morphology and taxonomy, is conducted. This step verifies the species and confirms the material's authenticity through comparative studies with reference specimens.

iii. Macroscopic and Microscopic Studies:

Macroscopic Analysis involves observing external features, like shape, size, color, and surface characteristics, visible to the naked eye or under low magnification.

Microscopic Analysis goes deeper, involving a detailed examination of cellular structures, tissues, and diagnostic characteristics such as stomata, trichomes, and xylem/phloem patterns under a microscope (if applicable)

iv. Powder Analysis(if applicable):

After grinding the material into powder, various physical and chemical tests are performed. Microscopic examination of the powdered form helps identify unique cellular or tissue structures, as well as characteristic cell types, fibers, or crystals.

Activity 2- Discussion (45 minutes)

During the discussion, students will analyze the results from the practical session. Key points to address include:

- Interpretation of Results: Understanding whether the raw drug matches the expected profile in terms of color, texture, chemical components, and chromatographic patterns.
- Challenges: Discussing potential difficulties encountered, such as variations in raw drug samples or testing inconsistencies.
- Importance of Authenticity: Reflecting on why accurate authentication is critical in preventing fraud, ensuring safety, and maintaining therapeutic efficacy in drug formulations.

Activity 3 -. Conclusion (15 minutes)

The authentication of raw drugs is a crucial process in quality control. By using various techniques such as visual, microscopic, chemical, and chromatographic methods, conclude the identity and purity of raw drug samples.

Practical Training 1.2 : 1. Purification of Lingam.

2. Purification of Sivathai.

3. Kandhaga suthi mentioned in Amirtha kandhi kukkil valladhi

4. Abragha suthi mentioned in Abraha chendhuram

Total Activity Hours (8 Hours)

1.Purification of Lingam (Gunapadam Thathu - Jeevavaguppu) (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

The teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity: 1 Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity: 2 Practical session (1hour 30 minutes)

- Preparation of Ingredients - Collect equal proportions of lemon juice, cow's milk, and Acalypha indica juice.
- Setting Up the Churukku Process - Place the lingam in a suitable vessel or pot. Pour the mixture of lemon juice, cow's milk, and Acalypha indica juice over the lingam, ensuring it is fully immersed.
- Performing the Churukku Process - Churukku is applied, which may involve gentle heating or allowing the mixture to act on the lingam for a specific period.
- Rinsing and Repeating - After the treatment, remove the lingam from the mixture, rinse thoroughly with clean water. If needed, repeat the process to ensure thorough purification.

Activity: 3 Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Purification of Sivathai (Kannusami Pillai C. Sigicha Ratna Deepam, Part 1) (1 Hour)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity: 1 Identification and ordering of raw drugs (5 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity: 2 Practical session (40 minutes)

- Preparation - Start by carefully removing the midrib from the roots. This central vein can sometimes contain fibers or unwanted compounds, so removing it ensures a more refined preparation.
- Boiling in Milk - Place the roots in a pot and cover them with fresh cow's milk. Simmer until the roots are thoroughly softened, and the milk has been reduced.
- Drying in Sunlight - After boiling, spread the milk-treated roots out on a clean surface in direct sunlight.

Activity: 3 Observation, Discussion & Recommendation (5 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Amirtha kandhi kukkil valladhi – Kandhaga suthi (Agathiyar vaithiya vallathi 600) (3 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key

steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity: 1

Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity: 2 Practical session (2hours 30 minutes)

- Initial Setup - Place Amuri in a mud pot. Spread Gandhakam evenly over the Amuri in the pot.
- Covering and Sealing - Cover the mud pot with vedu Use agal (another clay lid or sealing material) to close the pot tightly.
- Pudam Process (Stage 1) - Place the sealed pot inside a pit and subject it to the pudam process .This initial heating allows the Amuri to interact with the sulfur, aiding in the removal of impurities.
- Repetition with Various Purifying Agents - After the first heating, open the pot, remove the Kandhakam and repeat the pudam process with each of the following purifying agents:

1. Venkaya charu
2. Fresh cow's milk
3. Aanai kutty thakkali charu
4. Sirukeerai charu
5. A mixture of curd and mayilthutham

For each stage, immerse the Gandhakam in the respective juice or mixture and subject it to the pudam process,

- Final Steps - After each cycle, allow the Gandhakam to cool before repeating with the next substance.

Activity: 3 Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

4. Abragha Suthi mentioned in Abraha chendharam (Kannusami Pillai C. Sigicha Ratna Deepam, Part 1) (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity: 1 Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity: 2 Practical session (1Hour 30 minutes)

- Preparation - Begin by chopping Abraham into small pieces. Fill a mud pot halfway with padigaram.
- Layering and Pudam Process - Place the pieces of Abraham over the initial layer of padigaram in the pot. Cover the Abraham pieces by filling the pot with the remaining padigaram. Apply the varaga pudam process.
- Post-Pudam Process - After the heating process, add water to the Abraham and knead it thoroughly to remove padigara sathu. Allow the mixture to sit for a while, and then carefully remove the supernatant fluid. Repeat this washing and supernatant removal process two to three times to ensure thorough cleansing of the Abraham pieces.

Activity: 3 Observation, Discussion, & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 1.3 : 1. Preparation of substitute

2. Substitutes for the extinct raw drugs

3. Comparison of original drug with an adulterant by organoleptic characters

1. Total Activity Hours (4 Hours)

1.Preparation of substitute - Substitute for Aattu paal (30 minutes)

A. Introduction and demonstration (5 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (5 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2. Practical session (15 minutes)

- Boil pasumpal with chukku and sirukanchori ver

Activity 3 Observation, Discussion & Recommendation (5 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. List out the substitutes for the extinct raw drugs (3 Hours)

Activity 1: Literature Compilation and Study (30 minutes)

- i. Objective: Identify extinct or rare raw drugs and their traditional substitutes.
- ii. Resources: Ancient texts, Pharmacognosy and Ethnobotany research. Journals
- iii. Steps:

- Collect names and descriptions of raw drugs listed as rare or extinct.
- Document therapeutic properties, botanical names, and regions of origin.
- Identify potential substitutes from similar pharmacological classes or folklore remedies.

Activity 2 Consultation with Experts (30 minutes)

- i. Meet with - Siddha practitioners, Pharmacognosists and Ethnobotanists. Record substitutes historically or regionally used for the extinct drugs.

Activity 3 Practical Laboratory Study (30 minutes)

- i. Objective: Compare and validate substitutes for extinct raw drugs.
- ii. Steps:

- Procure Substitutes
- Obtain plants, minerals, or substances cited as substitutes.
- Ensure authentication of raw materials by a qualified pharmacognosist.

Activity 4 Field Studies (1 Hour)

- Collaborate with tribal or local communities to observe practical usage of substitutes.
- Record traditional knowledge on preparation, dosage, and applications.

Activity 5 Documentation and Standardization (30 minutes)

- Create a database of extinct drugs, their substitutes, and comparative studies.
- Develop formulations using substitutes and validate them through clinical trials, if feasible.
- Share findings via publications and contributions to pharmacopoeias.

3. Compare the original drug with the adulterant by finding the organoleptic characters (30 minutes)

Activity 1 Collection and Authentication (10 minutes)

i. Original Drug: Obtain the authentic sample from a reliable source, like a government-approved herbarium, pharmacy, or pharmacognosy lab.

ii. Adulterant: Obtain the suspected adulterant or counterfeit sample from a market or provided sample set.

Ensure both samples are labelled and stored properly to avoid contamination.

Activity 2 Organoleptic Evaluation, Recording and Validation of Observations (15 minutes)

Organoleptic characters are sensory attributes observed using the five senses.

Compare the original and adulterant for the following:

i. Color - Observe the color of the samples under natural light. Note any variations (e.g., brighter, duller, uneven coloration).

ii. Odour - Crush a small portion of each sample to release volatile compounds. Describe the odor. Use descriptors from standard organoleptic charts, if available.

iii. Taste - If safe, taste a small portion of the samples. Describe the flavor. Rinse the mouth thoroughly after tasting each sample.

iv. Texture - Feel the surface and internal texture of the samples (e.g., smooth, rough, fibrous, powdery). Note differences in firmness or brittleness.

v. Shape and Size (for whole drugs like seeds, leaves, or roots) - Compare morphological characteristics, such as the shape, size, and surface structure. Use a ruler or caliper for precise measurements.

vi. Fracture (if applicable) - Break the samples (e.g., bark or root). Observe the type of fracture (e.g., smooth, fibrous, uneven).

Recording Observations - Use a table format to document the findings.

Validation of Observations - Compare findings with pharmacopoeial standards or authenticated references (e.g., Indian Pharmacopoeia, WHO Monographs). Consult with a pharmacognosy expert to verify discrepancies.

Activity 3 Submission of Data (5 minutes)

- Compile the observations into a detailed report.
- Include photographs of both the original drug and adulterant with annotations.
- Conclude with key differences and potential impact on therapeutic efficacy.

Experiential learning Activity

Experiential-Learning 1.1 : 1. Poonagam cultivation

2. Collection of Ayam(natural Iron)
3. Collection of Moosambaram
4. Erukkampal collection
5. Collection of Kadalai pulippu
6. Vazhai kizhangu neer

Total Activity Hours: 10 Hours

1. Perform the traditional cultivation method of poonagam (Anubhoga Vaithiya Navaneetha Thirattu part 1) 2 hours

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity: 2 Practical session (1hour 30 minutes)

- Prepare a square pit - Dig a square pit in slightly moist red soil, with dimensions of one kejasathuram.
- Create a base layer - Spread a one-inch thick layer of Varagu Vaikkol (millet straw) at the bottom of the pit.
- Moisten the layer - Lightly sprinkle water over the straw to ensure it is damp.
- Seal the pit - Cover the pit completely using materials such as straw mats to create a tight seal. This helps to maintain the moisture and ideal conditions.
- Maintain the moisture- Each day, sprinkle water over the covered pit to keep the environment slightly moist, ensuring the conditions remain suitable for earthworm formation.
- Wait for earthworms to form - After following this process for one week to ten days, earthworms will begin to form in the pit.

Activity: 3 Discussion & recommendation (15 minutes)

Wrap up the session by discussing the outcomes, addressing any challenges / difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Carry out the collection of Ayam in a specific area (Agathiyar 12000 - 3 Kaandam) 1 Hour

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity: 2 Practical session (30 minutes)

- Divide the class into five groups - Organize the students into small teams to encourage collaborative learning.

- Collect sand containing iron particles from specific area - Each group should gather sand that has traces of iron in it.
- Spread the sand evenly on a plate - Distribute the sand in a thin layer on a flat surface or plate.
- Use a magnet to extract the iron - Hold a magnet above the sand and gently move it across the surface. The magnet will attract the iron particles, which will attach to its surface.
- Observe and record the results - Once the iron has been separated, each group can discuss the process and record their observations.

Activity 3: Discussion & recommendation (15 minutes)

Wrap up the session by discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Execute the collection of moosambaram with the specified methods mentioned in the texts (Gunapadam – Mooligaivaguppu) 2 Hours

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity: 2 Practical session (1hour 30 minutes)

- Scrape the leaves deeply - Begin by scraping the Muththiya Soatru Kattrazhai leaves from top to bottom, using a sharp tool to ensure a deep scrape.
- Observe the initial liquid - As you scrape, a yellowish liquid will start to ooze out from the leaves.
- Allow the liquid to change colour - Over the next two to three days, this yellowish liquid will gradually darken, turning into a deep reddish-brown or dark arakku color.
- Solidification of the resin - As the liquid changes color, it will begin to solidify.
- Collect the solidified resin - Once the resin has fully solidified, carefully separate it from the leaves and collect it for further use.

Activity 3 Discussion & recommendation (15 minutes)

Wrap up the session by discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

4. Perform the collection of Erukkampal with the specified methods (1 Hour)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity: 2 Practical session (40 minutes)

- Collect before sunrise - The Erukkampal should be collected before sunrise to ensure the best quality.
- Break each leaf individually - Gently break each leaf one by one, allowing the milk to drip out slowly in drops.

- Collect the milk in a suitable container - Use a glass or porcelain jar to collect the dripping Erukkampal.
- Prevent coagulation - Over time, the milk will naturally start to coagulate. To prevent this, add one or two pieces of padikaaram or paddy husk into the jar. These will help maintain the liquid state of the milk.

Activity: 3: Discussion & recommendation (10 minutes)

Wrap up the session by discussing the outcomes, addressing any challenges/difficulties, and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

5. Carry out the collection of Kadalai pulippu (Gunapadam – Mooligaivaguppu) 2 Hours

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity: 2 Practical session (1hour 30 minutes)

- Cover the plant with a cloth - Place a clean white cloth over the Kadalai plant to catch the dew droplets that form overnight.
- Wait for dew to accumulate - Allow the cloth to remain on the plant until enough dew has gathered on the surface of the cloth.
- Squeeze to collect the dew - Once sufficient dew has been absorbed by the cloth, gently squeeze it to gather the accumulated droplets.

Activity: 3 Discussion & recommendation (15 minutes)

Wrap up the session by discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

6. Perform the collection of Vazhai kizhangu neer with specified methods (2 Hours)

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity: 2 Practical session (1hour 30 minutes)

- Create a pit in the stump - Make a small pit in the stump of the plantain tree, ensuring it can collect any fluid that seeps out.
- Leave it overnight - Allow the pit to sit undisturbed for the whole night to give the fluid time to accumulate.
- Collect the fluid -The next day, carefully collect the accumulated fluid from the pit.
- Store in a glass bottle -Transfer the fluid into a glass bottle for storage and future use.

Activity: 3. Discussion & recommendation (15 minutes)

Wrap up the session by discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 1.2 : 1. Purification of Ayam

2.Purification of Ettikottai

3.Sangu parpam -- Sangu suthi

4.Neeradimuthu vallathi – Serangottai suthi

1. Total Activity Hours (10 Hours)

1.Purification of Ayam (Marunthu Sei Iyalum Kalaiyum) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 Practical session (1 Hour 30 Minutes)

- Soaking in Lemon Juice - Begin by soaking the iron powder in fresh lemon juice for two days. Stir the mixture occasionally to ensure even exposure to the juice.
- Soaking in Gingelly (Sesame) Oil -After soaking in lemon juice, remove the iron powder and rinse it lightly if necessary.Then, soak the iron powder in gingelly oil for one day.
- Roasting: After soaking in oil, remove the iron powder and drain any excess oil. Roast the iron over low heat.

Activity 4 Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Purification of Ettikottai (Sigicha Ratna Deepam - Vaithiya nool) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 Practical session (1 hour 30 Minutes)

- Boiling with Rice Paddy - Boil the seeds along with the rice paddy.
- Soaking in *Sirukeerai* Juice - After boiling, immerse the seeds in *Sirukeerai* juice for one *samam*
- Thorough Washing - After the soaking period, remove the seeds from the juice and wash them thoroughly with clean water. This final washing step ensures any residual substances are rinsed away, leaving the seeds purified and ready for medicinal application.

Activity 4 Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Sangu parpam (Kannusamy pathartha guna vilakkam) (1 Hour)

Activity 1 Group discussion (5 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2 Identification and ordering of raw drugs (5 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 Practical session (45 minutes)

- Preparation of *Keezhanelli* Extract - Prepare the *Keezhanelli samoola chaaru* by extracting juice from the whole plant
- Soaking the Conch Shell - Place the conch shell in a container and fully immerse it in the *Keezhanelli* extract. Allow the shell to soak in the extract for three days.
- Washing with Water - On the fourth day, remove the *Sangu* from the extract and wash it thoroughly with clean water. This final rinse helps remove any residue from the *Keezhanelli* extract, leaving the conch shell purified.

Activity 4. Observation, Discussion & Recommendation (5 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing

instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

4. Neeradimuthu vallathi - Senkottai suthi (Anubhoga Vaithiya Navaneetha Thirattu part 8) (5 Hours)

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 Practical session (4 Hours 15 minutes)

Boil Serankottai in Saanappal seven times, then boil once in Puli Ilai Chaaru , Pasuvin Paal and Ilaneer . Finally, dry thoroughly before use.

Activity 4.Observation, Discussion & Recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 1.3 : 1.Intentional and unintentional adulteration

2.Laws designed to prevent adulteration.

3.Natural preservatives used in different formulations

1.Total Activity Hours (6 Hours)

1. List the intentional and unintentional adulterants and find the method to detect adulterants in five different raw drugs. (2 Hours)

i. List of Adulterants (10 minutes)

A. Intentional Adulterants - Similar-looking inferior substances and Substituting cheaper alternatives

B. Unintentional Adulterants (Contamination due to poor handling/storage):

- Microbial contamination.
- Dirt, stones, or foreign matter.
- Spoiled or insect-damaged materials.

ii. Selection of Five Raw Drugs and Associated Adulterants (10 minutes)

iii. Practical Steps for Detection (1 Hour 30 minutes)

A. Organoleptic Evaluation - Compare the authentic and adulterated samples' colour, texture, odour, and taste.

Note any irregularities like the foreign smell, discolouration, or presence of non-uniform particles.

B. Microscopic Analysis - Prepare slides of powdered samples using a light microscope.Observe distinct cellular structures (e.g., starch grains, trichomes) unique to authentic drugs.

C. Chemical Tests for Specific Adulterants

D. Thin Layer Chromatography (TLC) (If applicable)

- Prepare extracts of authentic and adulterated samples.
- Spot samples on a TLC plate and develop using a suitable solvent.
- Compare the R_f values of the separated compounds to detect adulteration.

E. Ash Value and Foreign Matter Content

- Ash Value: Incinerate the drug and weigh the residual ash. Higher ash content indicates adulteration with inorganic material.
- Foreign Matter: Physically separate foreign particles like stones or dirt and weigh the contaminants.

iv. Recording Observations and Submission of Data (10 minutes)

- Include detailed observations, methods, and photographic evidence.
- Discuss findings in comparison to pharmacopoeial standards.
- Highlight implications of adulteration on therapeutic efficacy and safety.

2. Evaluating the effectiveness of laws designed to prevent adulteration.(2 Hours)

i. List out Relevant Laws to Cover (1Hour 30 minutes)

A. Demonstration of Adulteration Detection

a) Set up a testing station:

- Provide samples of adulterated and authentic raw drugs (e.g., turmeric with lead chromate, milk with water).
- Let participants perform simple detection tests (chemical or physical)

b) Connect the results to laws:

- Explain how laws mandate purity standards and penalize adulteration.
- Use case studies to show the legal consequences of adulteration.

B. Visual Learning and Group Activity

a) Charts and Posters:

- Display key provisions of each law and penalties for violations.
- Include flowcharts showing how adulteration cases are processed legally.

b) Group Quiz:

- Divide participants into teams.
- Ask questions

ii. Evaluation and Submission (30 minutes)

- Collect observations and conclusions from participants.
- Discuss the importance of legal awareness in preventing adulteration.
- Submit a report summarizing the session with key learnings.

3. List the formulations in which natural preservatives are used (2 Hours)

Activity 1. Selection of Formulations (15 minutes)

- Gather examples of formulations that contain natural preservatives
- Label each formulation and list its ingredients.

Activity 2. Testing the Role of Natural Preservatives by carrying out any one test enlisted (35 minutes)

- Microbial Growth Test
- Antioxidant Activity Test
- pH Stability Test
- Shelf-life study

Activity 3 Identification of Natural Preservatives in Formulations (45 minutes)

i. Thin Layer Chromatography (TLC) or

ii. Qualitative Tests like

- Honey: Add water to the formulation and test for foam formation (indicates honey presence).
- Ascorbic Acid: Test with iodine solution; disappearance of colour confirms Vitamin C.
- Lemon Juice: Test with litmus paper; acidic pH confirms presence.

Recording Observations (10 minutes)

- Use a table to summarize findings

Activity 4 Submission of Data (15 minutes)

Compile a report with:

- The list of formulations studied.
- Observations from the tests.
- Discussion of results and conclusions.

Modular Assessment

Assessment method	Hour
Instructions — Conduct a structured Modular assessment. The assessment will be for 50 Marks. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per Table 6 C. 1. Concept Mapping / Visual Diagram (25 Marks) Task: Draw a concept map linking the following: • Classification of raw drugs • Methods of collection • Authentication • Purification • Substitution • Preservation 2. Problem-based Assignment (15 Marks) Selection of a problem: Choose a problem that aligns with the module's content and objectives. The problem should be open-ended, with multiple possible approaches or solutions. • Problem Understanding: Students should analyse the problem and identify key elements. • Research and Analysis: Gather data and research relevant to the problem. • Solution Design: Brainstorm and develop potential solutions. • Implementation: Implement the most viable solution (if applicable). • Evaluation: Assess the results or reflect on the process. • Deliverables: Students should submit their findings in the required format (e.g., a written report, prototype, or video). 3. Mcq tests (10 Marks) i. Identify the specific learning outcomes and module objectives the test aims to assess. ii. Question Types: Use various MCQ formats: • Single correct answer • Multiple correct answers • True/False • Assertion-Reason iii. For paper-based tests, use OMR sheets or manual checking.	4

(OR)

2. Any practical in converted form can be taken for assessment. (25 marks)
- and
3. Any of the experiential learning can be taken as an assessment. (25 marks)

Module 2 : Principles in drug classification (Charakku thathuvam) and Storage Practice

Module Learning Objectives

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

- Discuss the key principles of drug classification in Siddha medicine (Charakkuthathuvam).
- Explain Athicharakku and its significance.
- Identify and categorize drugs under Vatha muraikku uthavum charakkugal.
- Explain the types of drugs that come under vaithiya muraikku uthavum charakkugal.
- Recognize and classify various types of drugs (Nanavitha charakkugal) .
- Explain good storage practices to preserve raw drugs' quality, potency, and effectiveness.

Unit 1 Athi charakku (Prodrug) & Vaithiya muraikku uthavum charakkugal (Drugs used in medicines)

- 2.1.1.Types of Athicharakku
- 2.1.2.Types of Vaithiya muraikku uthavum charakku
 - 2.1.2.1.Marunthu charakku
 - 2.1.2.2.Rasayana charakku
 - 2.1.2.3.Mooligai charakku
 - 2.1.2.4.Kadai charakku

References: 4,5,6

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Justify the clinical significance of using a prodrug (Athicharakku) in place of or alongside active raw drugs in Siddha formulations. 2. Analyze the properties and traditional roles of Nitrinathukku Aadhi,	1	Lecture	CAN	Knows-how	DIS,FC,L &PPT ,BS

	Chunnathukku Aadhi, Chendhurathadhi, Urukkinathukku Aadhi, and Varnathadhi. 3. Examine the classification and functional relevance of Vaithiya Muraikku Uthavum Charakku and its types.					
CO1,CO2,CO3,CO4,CO8	1. Demonstrate and adapt the identification and differentiation of the potency of Chenduram formulations prepared with and without Athicharakkukal for the same therapeutic applications. 2. Perform and adapt traditional validation techniques to assess Chenduram formulations prepared with and without Athicharakkukal, ensuring consistency with classical standards.	2	Practical Training 2.1	PSY-ADT	Shows-how	DIS,DL,I BL
CO1,CO2,CO3,CO4,CO8	1. Assemble the Parpam, Chendhuram, and Urukku formulations with Aadhi Charakkukal. 2. Manipulate the identification and differentiation of the potency of Parpam formulations prepared with Athicharakkukal and without Athicharakkukal for the same therapeutic applications. 3. Operate the validation of Chunnam formulations prepared with Athicharakkukal and without Athicharakkukal using traditional validation techniques.	3	Experiential-Learning 2.1	PSY-MEC	Does	FC,LS,C_L

Unit 2 Vatha muraikku uthavum charakkugal, Nanavitha charakkugal (Miscellaneous drugs)

2.2.1.Types of Vatha muraikku uthavum charakkugal

2.2.1.1.Aadum charakku

2.2.1.2.Ada charakku

2.2.1.3.Adi odum charakku

2.2.1.4.Uppu puli charakku

2.2.1.5.Vinthu natha charakku

2.2.1.6.Sathru mithru charakku

2.2.1.7.Pancha bootha charakku

2.2.1.8. Kattu charakku

2.2.1.9.Pathanga charakku
 2.2.1.10.Kattum charakku
 2.2.2.Nanavitha charakkugal (Miscellaneous drugs)
 2.2.2.1.Padaana charakku
 2.2.2.2.Vasanai charakku
 2.2.2.3.Pugai charakku
 2.2.2.4.Kaara charakku
 2.2.2.5.Saara charakku
 2.2.2.6.Kaadi charakku
 2.2.2.7.Kalappu charakku
 2.2.2.8.Poli charakku
 2.2.2.9.Nattu charakku
 2.2.2.10.Seemai charakku
 2.2.2.11.Pala charakku
 2.2.2.12.Sambara charakku

References: 4,5,6

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Evaluate the role of Vatha Muraikku Uthavum Charakkukal and Naanavitha Charakkugal, along with their types. 2. Appraise the importance, clinical applications, and underlying theory of Uppu–Puli Charakkugal. 3. Justify the importance, clinical applications, and theoretical principles of Sathru–Mithru Charakkugal.	2	Lecture	CE	Knows-how	LS,BS,L &PPT
CO1,CO2,CO3	1. Devise and document higher-order formulations containing Sathru–Mithru	4	Practical	PSY-	Shows-	PL,DL

,CO4,CO8	Charakkukal, integrating classical texts and contemporary understanding of their therapeutic properties. 2. Prepare two novel preparations using Adum Charakku and Aadaa Charakku, estimating the end product quantity with precision and scientific reasoning.		Training 2.2	ORG	how	
CO1,CO2,CO3 ,CO4,CO8	1. Assemble and document higher-order formulations with Uppu–Puli Charakkukal. 2. Operate data collection and outcome comparison in ten patients with the same clinical condition, treated with and without Uppu–Puli Charakku-containing formulations.	5	Experiential-Learning 2.2	PSY-MEC	Does	IBL,CBL,DIS,BS

Unit 3 Good storage practice

2.3.1.Preservation methods of Unique Raw drugs.

2.3.2.Appropriate Storage containers/ practices followed to preserve raw drugs and prepared medicines

2.3.3.Nature of drug storage vessels (Kalathin gunam)

References: 4,18

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Assess the principles and procedures of Good Storage Practices (GSP). 2. Evaluate the importance of Good Storage Practices. 3. Appraise various preservation methods applicable to Unique Raw Drugs. 4. Justify the appropriateness of storage containers and practices used for preserving raw drugs and prepared medicines. 5. Critique the gunam of drug storage vessels as described in Siddha literature.	2	Lecture	CE	Knows-how	FC,C_L,L &GD
CO1,CO2,CO3 ,CO4,CO8	1. Demonstrate the method of preservation of Karungkozhi maamisam under guided supervision. 2. Perform the standard method for preservation of animal blood following	4	Practical Training 2.3	PSY-GUD	Shows-how	DL,BL,IBL

	stepwise procedural guidance.					
CO1,CO2,CO3 ,CO4,CO8	1. Imitate the method of Mulleli Maamisam preservation under supervision. 2. Practice the method of Nathai Sathai preservation as per instructions.	5	Experiential- Learning 2.3	PSY- GUD	Does	DL,DIS,C _L
Practical Training Activity						
Practical Training 2.1 : 1. Differentiate the potency of Chenduram formulations prepared with Athicharakkukal and without Athicharakkukal 2. Validate the Chenduram formulations prepared with and without Athicharakkukal						
1. Total Activity Hours (2 Hours) 1. Identify and differentiate the potency of Chenduram formulations prepared with Athicharakkukal and without Athicharakkukal for the same therapeutic applications (1 Hour) Activity 1: Preparation or procurement of Formulations (10 minutes) i) With Athicharakkukal: Prepare or procure the Chenduram formulation following traditional procedures, incorporating Athicharakkukal. ii) Without Athicharakkukal: Prepare or procure another Chenduram without using Athicharakkukal .Both the formulations should have the same therapeutic applications. Activity 2 : Design the Experiment (35 minutes) i)Create two groups: • Group A treated with Chenduram with Athicharakkukal. • Group B treated with Chenduram without Athicharakkukal. ii) In-vivo Studies - Administer formulations to the respective groups for a specific duration. Measure efficacy indicators such as: Symptom improvement , Blood tests or biomarkers and Imaging or other diagnostic measures as applicable. Activity 3 : Data Collection and Analysis (5 minutes) - Record pre-treatment and post-treatment values. Activity 4: Documentation (5 minutes) - Record every step meticulously, including preparation methods, raw materials used, and observed results. Activity 5: Conclusion (5 minutes) - By comparing the potency and safety profiles of both formulations, this practical can identify whether Athicharakkukal enhances the therapeutic benefits of Chenduram. 2. Validate the Chenduram formulations prepared with and without Athicharakkukal using traditional validation techniques (1 Hour) A. Experimental Groups						

- Create two experimental formulations: one with Athicharakkukal and one without.
- Compare outcomes against descriptions in traditional texts.

Activity 1: Preparation of Formulations (45 minutes)

- With Athicharakkukal: Prepare the Chenduram formulation following traditional procedures, incorporating Athicharakkukal .
- Without Athicharakkukal: Prepare another Chenduram without using Athicharakkukal .

Activity 2 : Validation Techniques (10 minutes)

Use traditional methods to assess the formulations:

- i) Color - Compare the final product's colour to documented standards for Chendhuram. Traditional texts often describe the ideal appearance.
- ii) Texture - Check fineness by rubbing a small amount between fingers.
- iii) Particle Size - Sprinkle a small amount of Chendhuram on water. A properly prepared formulation (should float, indicating proper particle size.
- iv) Lustre - Examine the metallic shine of Chendhuram powder under light, a traditional marker of proper preparation.

Activity 3 : Report and Interpretation (5 minutes)

- Summarize findings with references to traditional texts.
- Discuss whether Athicharakkukal enhances the quality of the formulation.

Practical Training 2.2 : 1. Higher order formulations with sathru - mithru charakukal
2. Estimate the end product of the formulation with adum charakku and aadaa charakku

Total Activity Hours (4 Hours)

1. List out the higher-order formulations with sathru-mithru charakukal (1 Hour)

Activity : 1 Identify Key Siddha Texts and Resources (40 minutes) - Siddha Classical Texts, Modern Publications, Research Journals and Articles and Thesis and Dissertations

Activity : 2 Organize Formulations by Type (10 minutes) - Parpam, Chendhuram, Chunnam and Urukku etc

Activity : 3 Compile Information into a Reference Document (10 minutes) - Create a table categorizing each formulation by type, raw materials, and references from the literature.

2. Two simple formulations with adum charakku and aadaa charakku and estimate the end product by traditional validation techniques. (3 Hours)

Activity :1 Divide the participants into two groups:

- Group 1 will work on the formulation with 100g Charakku .
- Group 2 will work on the formulation with 200g Charakku .

Activity : 2 Preparation of formulations (2 hours 15 minutes)

Activity : 3 Recording Observations (15 minutes)

- Each group records the weight of the initial mixture and the final product.
- Calculate weight loss .

Activity : 4 Compare the results between the groups.(10 minutes)

Activity : 5 Discussion and Analysis (20 minutes)

- Discuss how the volatile property of 100g Charakku causes weight loss during preparation.
- Highlight the role of each type of ingredient in the efficacy of Siddha formulations.
- Reinforce the importance of precise measurement and observation in traditional medicine preparation.

Practical Training 2.3 : 1.Preservation of Karungkozhi maamisam
2. Preservation of animal blood

Total Activity Hours (4 Hours)

1. Preservation of Karungkozhi maamisam (3 Hours)

Instruction to teacher - Introduction and Demonstration(10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (2 hours 30 minutes)

A.Preparation of Meat:

- Cleaning - Begin by thoroughly cleaning the Karungkoli Maamisam under running water to remove any contaminants.
- Skin and Bone Removal - Use a sharp knife to carefully remove the skin from the meat. Remove any bones from the meat, ensuring you have only the boneless, skinless meat left.
- Chopping the Meat - Chop the cleaned meat into small, uniform pieces. Smaller pieces allow for more efficient drying and quicker preservation. Aim for chunks of approximately 1-2 inches in size.

B. Drying Process:

- Sun-Drying - Spread the chopped pieces of Karungkoli Maamisam evenly on a flat, clean surface or tray. Place the tray in direct sunlight, preferably in a clean area with good air circulation. Allow the meat to dry in the sun for 1-3 days, depending on the intensity of the sun and humidity levels. It is essential to check the meat daily and turn the pieces to ensure uniform drying. The meat is properly dried when it becomes hard and breaks easily when bent, indicating that most of the moisture has been removed.

C. Storage:

- Cooling: Once fully dried, allow the meat to cool completely before storing.
- Packaging: Store the dried Karungkoli Maamisam in airtight containers or zip-lock bags. Ensure that all the air is expelled from the bags to prevent moisture re-entry.
- Labeling: Clearly label the containers with the date of drying for future reference.
- Storage Conditions: Keep the preserved meat in a cool, dark place, away from direct sunlight and humidity. Properly dried and stored Karungkoli Maamisam can last for several months.

Activity 3: Observation, Discussion, & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Preservation of animal blood (1 hour)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2: Practical session (30 minutes)

A. Collecting the Blood - Ensure that the collection vessel is clean and sanitized. Collect fresh blood into the vessel. It is essential to use the blood immediately after collection to maintain its properties for the preparation.

B. Preparing the Seelai Thuni - Use scissors to cut the seelai thuni into square-shaped pieces. The size of the squares can vary based on your intended use, but generally, pieces measuring around 6x6 inches are effective.

C. Soaking - Place the cut square pieces into the collected blood. Allow the seelai thuni to soak in the blood for approximately 10 minutes. This soaking process ensures that the cloth absorbs the properties of the blood, making it suitable for further applications.

D. Drying the Cloth - After soaking, carefully remove the pieces of seelai thuni from the blood. Gently squeeze out any excess blood without rinsing the cloth. Drying in Shade. Ensure good air circulation around the cloth for effective drying.

E. Storage - Once completely dry, store the seelai thuni pieces in a clean, dry container or bag to prevent contamination. Make sure they are kept away from moisture and direct sunlight.

Activity 3 : Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential learning Activity

Experiential-Learning 2.1 : 1. Parpam, chendhulam and urukku formulations with aadhi charakkukal

2. Differentiate the potency of Parpam formulations prepared with Athicharakkukal and without Athicharakkukal

3. Validate the Chunnam formulations prepared with Athicharakkukal and without Athicharakkukal

Total Activity Hour (3 hours)

1. List out the parpam, chendhulam and urukku formulations with aadhi charakkukal (1 hour)

Activity: 1 Identify Key Siddha Texts and Resources (30 minutes) - Siddha Classical Texts, Modern Publications, Research Journals and Articles and Thesis and Dissertations

Activity : 2 Organize Formulations by Type (15 minutes) - like Parpam, Chendhulam and Urukku

Activity : 3 Compile Information into a Reference Document (15 minutes) - Create a table categorizing each formulation by type , raw materials, and references from the

literature.

2. Identify and differentiate the potency of Parpam formulations prepared with Athicharakkukal and without Athicharakkukal for the same therapeutic applications. (1 hour)

Activity 1 - Preparation or procurement of Formulations (15 minutes)

- With Athicharakkukal: Prepare or procure the parpam formulation following traditional procedures, incorporating Athicharakkukal .
- Without Athicharakkukal: Prepare or procure another parpam without using Athicharakkukal
- Both the formulations should have the same therapeutic applications.

Activity 2 : Design the Experiment (30 minutes)

i) Create two groups:

- Group A treated with parpam with Athicharakkukal.
- Group B treated with parpam without Athicharakkukal.

ii) In-vivo Studies - Administer formulations to the respective groups for a specific duration.

Measure efficacy indicators such as - Symptom improvement, Blood tests or biomarkers and Imaging or other diagnostic measures as applicable.

iii) Data Collection and Analysis - Record pre-treatment and post-treatment values.

Activity : 3 Documentation (10 minutes) - Record every step meticulously, including preparation methods, raw materials used, and observed results.

Activity: 4 Conclusion and submission of data (5 minutes) - By comparing the potency and safety profiles of both formulations, this practical can identify whether Athicharakkukal enhances the therapeutic benefits of Parpam.

3. Validate the Chunnam formulations prepared with Athicharakkukal and without Athicharakkukal by traditional validation techniques. (1 hour)

Activity 1: Experimental Groups

- Create two experimental formulations: one with Athicharakkukal and one without.
- Compare outcomes against descriptions in traditional texts.

Activity 2 : Preparation of Formulations (45 minutes)

- With Athicharakkukal: Prepare the Chunnam formulation following traditional procedures, incorporating Athicharakkukal .
- Without Athicharakkukal: Prepare another Chunnam without using Athicharakkukal .

Activity : 3 Validation Techniques(10 minutes) - Use traditional methods to assess the formulations like Mix a small amount of chunnam with turmeric and observe the colour change. for a well-prepared chunnam the yellow color of chunnam will turn red.

i)Colour - Compare the final product's colour to documented standards for Chunnam. Traditional texts often describe the ideal appearance.

ii)Texture - Check fineness by rubbing a small amount between your fingers.

iii) Particle Size - Sprinkle a small amount of Chunnam on water. A properly prepared formulation should float, indicating proper particle size.

iv) Lustre - Examine the metallic shine of Chunnam powder under light, a traditional marker of proper preparation.

Activity : 4 Report and Interpretation(5 minutes)

- Summarize findings with references to traditional texts.
- Discuss whether Athicharakkukal enhances the quality of the formulation.

Experiential-Learning 2.2 : 1. Higher order formulations with Uppu - puli charakukal

2. Compare the outcomes of treatment with formulations containing Uppu-Puli Charakku and those without it."

1. Total Activity Hours (5 hours)

1. List out the higher-order formulations with Uppu-puli charakukal (1 hour 15 minutes)

Activity : 1 Identify Key Siddha Texts and Resources(45 minutes) - Siddha Classical Texts,Modern Publications, Research Journals and Articles and Thesis and Dissertations

Activity : 2 Organize Formulations by Type (20 minutes) - like Parpam, Chendhuram, Chunnam and Urukku etc

Activity : 3 Compile Information into a Reference Document (10 minutes) - Create a table categorizing each formulation by type, raw materials, and references from the literature.

2. Submit data from ten patients with the same clinical condition, comparing the outcomes of treatment with formulations containing Uppu-Puli Charakku and those without it.(3 Hours 45 minutes)

Activity : 1 Preparation of Formulations (2 hours 45 minutes)

- Prepare the formulation following traditional procedures, incorporating Uppu - puli charakukal
- Prepare another formulation without using Uppu - puli charakukal

- Both formulations should have the same therapeutic applications.

Activity 2 Design the Experiment(1 Hour)

i) Create two groups:

- A Group of 10 patients treated with a formulation with Uppu - puli charakukal
- A group of 10 patients treated with a formulation without Uppu-puli charakukal

ii) In-vivo Studies

Administer formulations to the respective groups for a specific duration.

Measure efficacy indicators such as: Symptom improvement , Blood tests or biomarkers and Imaging or other diagnostic measures as applicable.

iii) Data Collection and Analysis - Record pre-treatment and post-treatment values.

iv) Documentation - Record every step meticulously, including preparation methods, raw materials used, and observed results.

v) Conclusion - By comparing the potency and safety profiles of both formulations, this practical can identify whether Uppu - puli charakukal enhances the therapeutic benefits of the formulation

Experiential-Learning 2.3 : 1.Mulleli maamisam preservation

2.Nathai sathai preservation

Total Activity Hours (5 Hours)

1.Demonstrate the method of Mulleli maamisam preservation (3 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (2 hours 30 minutes)

A. Preparation of Meat:

- Cleaning: Rinse the Mulleli Maamisam under running water to remove any contaminants or impurities.
- Skin, Thorn, and Bone Removal: Use a sharp knife to carefully remove the skin from the meat. This step helps reduce moisture content and prevents spoilage. Remove any thorns (if applicable) and bones, ensuring that only boneless and skinless meat is left.

- Chopping the Meat: Chop the cleaned meat into small, uniform pieces, about 1-2 inches in size. Smaller pieces will allow for more efficient drying and preservation.

B. Drying Process:

- Sun-Drying: Spread the chopped pieces of Mulleli Maamisam evenly on a flat, clean surface or tray. Place the tray in direct sunlight, preferably in a clean area with good air circulation. Allow the meat to dry in the sun for 1-3 days, depending on the intensity of the sun and humidity levels.

C. Storage:

- Cooling: Once fully dried, allow the meat to cool completely before storing.
- Packaging: Store the dried Mulleli Maamisam in airtight containers or zip-lock bags. Ensure that all air is expelled from the bags to prevent moisture re-entry.
- Labeling: Clearly label the containers with the date of drying for future reference.
- Storage Conditions: Keep the preserved meat in a cool, dark place, away from direct sunlight and humidity. Properly dried and stored Mulleli Maamisam can last for several months.

Activity 4 : Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the method of Nathai sathai preservation (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (1 hour 30 minutes)

A. Preparation of Meat:

- Cleaning: Rinse the Nathai Sathai under running water to remove any contaminants or impurities.
- Shell Removal: Carefully remove the shell from the Nathai meat.
- Collecting Flesh: Gather the fresh flesh of the Nathai after removing the shell. Ensure that only the edible parts are retained.

- Chopping the Meat: Chop the cleaned flesh into small, uniform pieces.

B. Drying Process:

- Sun-Drying: Spread the chopped pieces of Nathai Sathai evenly on a flat, clean surface or tray. Place the tray in direct sunlight, preferably in a clean area with good air circulation. Allow the meat to dry in the sun for 1-3 days, depending on the intensity of the sun and humidity levels.

C. Storage:

- Cooling: Once fully dried, allow the meat to cool completely before storing.
- Packaging: Store the dried Nathai Sathai in airtight containers or zip-lock bags. Ensure that all air is expelled from the bags to prevent moisture re-entry.
- Labeling: Clearly label the containers with the date of drying for future reference.
- Storage Conditions: Keep the preserved meat in a cool, dark place, away from direct sunlight and humidity. Properly dried and stored Nathai Sathai can last for several months.

Activity 4 : Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Modular Assessment

Assessment method

Instructions - Conduct a structured Modular assessment. Assessment will be for 25 marks. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per table 6 C.

1. Summary writing (15 Marks)

- Select a topic relevant to the module
- Appropriate length (depending on the time allocated for the assessment).
- Contains distinct key points for summarization.
- Specify a range (e.g., 150–200 words) to encourage precision.
- Evaluation Criteria are based on Comprehension, Selection of Ideas, Language and Organization of the summary

Hour

2

2. Viva voce (10 Marks)

Format: One-on-one interviews.

Duration: Set a reasonable time per student (e.g., 10–15 minutes).

Question Types:

- Open-ended questions to encourage discussion.
- Application-based questions to assess practical knowledge.
- Hypothetical scenarios for critical thinking.

Evaluate Responses using predefined criteria such as:

- Knowledge of the subject
- Clarity and articulation
- Critical thinking and reasoning
- Confidence and presentation
- Time management

(OR)

Any practical in converted form can be taken for assessment. (10 marks)

and

Any of the experiential learning can be taken as an assessment.(15 marks)

Module 3 : Principles of Drug preparation

Module Learning Objectives

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

- Describe the foundational principles of drug preparation in Siddha medicine.
- Explain the principle and application of ega mooligai prayogam.
- Demonstrate specific preparation techniques, including marana prayogam and muppu chunna prayogam.
- Discuss the methods involved in the processing of navaloga phashana maranigal.
- Describe the preparation and application of formulations involving seyaneer prayogam and dravaga prayogam.

Unit 1 Ega mooligai prayogam and Marana prayogam

- 3.1.1.Introduction of Principles of Drug Preparation
- 3.1.2.Principle of Ega mooligai prayogam
- 3.1.3.Formulations pertaining to Ega mooligai prayogam
 - 3.1.3.1.Thirikadugu chooranam
 - 3.1.3.2.Panchadeepakini chooranam
 - 3.1.3.3.Athimathura chooranam
 - 3.1.3.4.Amukkara chooranam
 - 3.1.3.5.Nilavagai chooranam
 - 3.1.3.6.Chandamarutha chendhuram
 - 3.1.3.7.Panchalavana parpam
 - 3.1.3.8.Panchadeepakini ilakam
- 3.1.4.Principle of Maarana prayogam
- 3.1.5.Formulations pertaining to maarana prayogam
 - 3.1.5.1.Thuvadasa loka maarana chendhuram
 - 3.1.5.2.Loga maarana kantha chendhuram
 - 3.1.5.3.Karuvanga chendhuram

3.1.5.4.Karuvanga parpam 3.1.5.5.Vanga chunnam 3.1.5.6.Genthi sembu 3.1.6.Navaloga navaphashana maaranigal References: 4,19,21,23,27,30,38						
3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Analyze the concept of <i>Ega Mooligai Prayogam</i> . 2. Examine the listed formulations and identify the theoretical principles of Ega Mooligai Prayogam as applied in each formulation. 3. Analyze the concept of Maarana Prayogam to understand its pharmacological depth and traditional context. 4. Examine the listed formulations to interpret the theoretical basis of the Maarana Prayogam as applied in each. 5. Compare the theoretical framework and applications of Navaloga and Navapaashana Maaranigal in Siddha medicine.	3	Lecture	CAN	Knows-how	L_VC,FC,DIS,C_L
CO1,CO2,CO3 ,CO4,CO8	1. Execute the process of Velvankam Madithal, adapting each step based on classical principles for accuracy and consistency. 2. Correlate Maarana Charakkukal with Maaranikkum Charakkukal through practical identification, adapting the approach based on the variations observed in both types. 3. Analyze and present the Ega Mooligai principle across ten Siddha formulations, adapting findings to submit a comprehensive data report.	6	Practical Training 3.1	PSY-ADT	Shows-how	DL,LS,IBL
CO1,CO2,CO3 ,CO4,CO8	1. Integrate classical principles of Rasam Madithal with a modern perspective on standardization and accuracy in Siddha pharmaceutics.	8	Experiential-Learning 3.1	AFT-SET	Does	DA,BS,FC

	2. Systematize the approach to Vangam Madithal by aligning traditional processes with scientific quality assurance values. 3. Organize therapeutic goals and ethical practices while performing Ayam Madithal, aiming for consistent outcomes through refined traditional techniques.					
--	---	--	--	--	--	--

Unit 2 Muppu chunna prayogam and Seyaneer prayogam

- 3.2.1.Principle & Uniqueness of Muppu Chunna prayogam and Seyaneer prayogam in drug preparation
- 3.2.2.Formulations pertaining to Muppu chunna prayogam
 - 3.2.2.1. Uppu chunnam
 - 3.2.2.2. Rasa chunnam
 - 3.2.2.3. Thurusu chunnam
- 3.2.3.Formulations pertaining to Seyaneer prayogam
 - 3.2.3.1.Thamira chendhura
 - 3.2.3.2.Thalaga parpam
 - 3.2.3.3.Seena vanga parpam
 - 3.2.3.4.Padikara parpam
 - 3.2.3.5.Pancha sathu chendhura-
 - 3.2.3.6.Annabedhi chendhura
 - 3.2.3.7.Sodasa mathirai
 - 3.2.3.8.Chandamarutham
 - 3.2.3.9.Uyarntha raga aya chendhura

References: 7,8,22,24,30,38

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Examine the concept and applications of Muppu Chunna Prayogam. 2. Analyze the listed formulations in detail and elucidate the theoretical	4	Lecture	CAN	Knows-how	ML,DIS,L &PPT

	principles of Muppu Chunna Prayogam as applied in each formulation. 3. Interpret the concept of Seyaneer Prayogam. 4. Analyze the listed formulations in detail and elucidate the theoretical principles of Seyaneer Prayogam as applied in each formulation. 5. Evaluate the principles and highlight the uniqueness of Muppu Chunna Prayogam and Seyaneer Prayogam in drug preparation.					
CO1,CO2,CO3,CO4,CO8	1. Perform the preparation of Vediuppu Seyaneer with accuracy and strict adherence to classical guidelines. 2. Execute the process of Muppu Chunnam, ensuring precision and consistency in each procedural step	8	Practical Training 3.2	PSY-MEC	Shows-how	DL,C_L
CO1,CO2,CO3,CO4,CO8	1. Imitate the process of Padikaara Parpam, ensuring precise adherence to classical techniques and maintaining consistency in quality throughout the preparation. 2. Practice the process of Pancha Sathu Chenduram, ensuring skillful application of traditional methods while ensuring therapeutic efficacy and proper formulation.	10	Experiential-Learning 3.2	PSY-GUD	Does	PT,IBL

Unit 3 Dravaka prayokam

- 3.3.1.Importance of Dravakam and its application in drug preparation
- 3.3.2.Formulations pertaining to Dravaka prayogam
 - 3.3.2.1.Linga karuppu
 - 3.3.2.2.Kaaraloga chendhuram
 - 3.3.2.3.Swarnaloga dravagam
 - 3.3.2.4.Ayaveera chendhuram
 - 3.3.2.5.Thani rasa chendhuram .
 - 3.3.2.6.Sootha parpam
 - 3.3.2.7.Aya thambira chendhuram

References: 7,9,24,38

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Interpret the concept and significance of Dravakam. 2. Examine in detail the apparatus used for the preparation of Dravakam and its various types. 3. Evaluate in detail the principles and procedures involved in Dravaka Prayogam. 4. Analyze the listed formulations in detail and elucidate the theoretical principles of Dravaka Prayogam as applied in each formulation. 5. Assess the importance of Dravakam and its applications in drug preparation.	3	Lecture	CAN	Knows-how	L&GD,F C,BS
CO1,CO2,CO3 ,CO4,CO8	1. Execute the process of Sanka Dravakam with precision, strictly adhering to classical methodologies. 2. Perform the process of Vedyuppu Seena Oma Dravakam, ensuring accuracy and strict adherence to traditional protocols.	6	Practical Training 3.3	PSY- MEC	Shows-how	Mnt,DL
CO1,CO2,CO3 ,CO4,CO8	1. Describe a refined preparation process for Sandarasa Parpam using Sanka Dravakam, ensuring accuracy, consistency, and innovative alignment with classical Siddha methods. 2. Demonstrate an advanced preparation method for Linga Karuppu using Vedyuppu Dravakam, applying traditional Siddha techniques with critical evaluation of formulation quality and therapeutic appropriateness.	8	Experiential-Learning 3.3	PSY- ORG	Does	BL,PT

Practical Training Activity

Practical Training 3.1 : 1. Velvankam madithal
 2.Match maarana charakkukal with maaranikkum charakkukal
 3.Evaluation of Ega Mooligai Principle

Total Activity Hours (6 hours)

1. Demonstrate the process of Velvankam madithal - Vanga chunnam (Gunapadam Thathu - Jeevavaguppu) (2 Hours)

Instruction to teacher - Introduction and Demonstration (15 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product

Activity 2 : Practical session (1 hour 15 minutes)

A. Preparation of Ingredients: Measure 4 parts of Velvangam and place them in a crucible. Measure 4 parts of Rasam.

B. Melting the Velvangam: Place the crucible with Velvangam over a moderate heat source. Allow it to melt thoroughly. The Velvangam should transform into a liquid or semi-liquid state

C. Mixing Velvangam and Rasam: Once the Velvangam has melted, carefully add the 4 parts of Rasam into the crucible with the melted Velvangam. Stir the mixture thoroughly with a mixing spatula to ensure both ingredients are well combined.

D. Cooling and Solidifying: Once the mixture is well mixed, pour it onto a plate. The plate should be flat and smooth to allow even cooling. Allow the mixture to cool down to room temperature. As it cools, it should solidify into a thick paste or semi-solid form.

E. Grinding into Powder: Once completely cooled and solidified, the substance can be broken into small chunks. Grind the cooled mixture into a fine powder using a kalvam

Activity 3 : Observation, Discussion & Recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Identify maarana charakkukal and match with maaranikkum charakkukal (1 hour)

Activity 1 : Setup:(5 minutes)

Place many raw drug substances in the two plates.

Introduction: (10 minutes)

- Explain the concept of Maarana Charakkukal and Maaranikkum Charakkukal.
- Highlight the importance of understanding these substances in traditional medicine and medicine preparation.

Activity 2 :Task for Students:(30 minutes)

- Ask students to observe the substances in the "Maarana Charakkukal" tray.
- Have them identify and pick the appropriate "Maaranikkum Charakkukal" from next tray.

Activity 3 : Discussion: (15 minutes)

- Once all pairs are matched, discuss the rationale behind each pairing.

3. Evaluation of Ega Mooligai Principle Across Ten Siddha Formulations and submit the data(3 Hours)

Activity 1: Split students into two batches and ask them to Identify any ten formulations (2 Hours)

Activity 2 : Group Discussion (45 minutes)

- Once batches complete their evaluations, they convene to present and discuss their findings.
- Discuss the Ega Mooligai concept and its relevance in treating specific conditions.

Activity 3 :Write the Concept and Submit (15 minutes)

Based on the analysis, students will collaboratively write a brief report explaining:

- The Ega Mooligai principle.
- Its application across the ten formulations.
- Observations on how supporting ingredients relevance in treating specific conditions.

Practical Training 3.2 : 1.Preparation of Vediuppu seyaner

2.Muppu chunnam

Total Activity Hours (8 Hours)

1. Preparation of Vediuppu seyaner (Gunapadam Thathu - Jeevavaguppu)(4 Hours)

Instruction to teacher - Introduction and Demonstration (15 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (3 hour 15 minutes)

A. Proportional Mixing - Take the specified proportions of Vedyuppu and old tamarind. Grind both together thoroughly to form a villai

B. Burning and Powdering - Shape the paste into small cakes or lumps and let them dry. Once dried, burn them completely until they are fully reduced to ash. Collect the ash and grind it into a fine powder.

C. Mixing with Navacharam - Take the powdered mixture and mix it with an equal amount of Navacharam.

D. Dew Collection Process - Place the mixture in a shallow container and leave it exposed to panipudam for 8 to 10 nights. The mixture will absorb moisture from the dew, and a liquid will be obtained from this process.

E. Collection of Liquid - Carefully collect the liquid that forms with syringes. This liquid, which contains the therapeutic properties of the ingredients, can be used according to the traditional preparation or formulation instructions.

Activity 3 : Observation, Discussion & Recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Muppu chunnam (Agathiyar amuthakalai gnanam) (4 Hours)

Instruction to teacher - Introduction and Demonstration (15 minutes)

Provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2: Practical session (3 hour 15 minutes)

Preparation of Ingredients - Vedyuppu, .Cheenakaram .Kalluppu and Vedyuppu Neer in a required quantity .

Grinding in Kalvam - Place all the ingredients into a Kalvam. Add Vedyuppu Neer gradually while grinding to achieve a fine, homogenous paste.

Shaping into Villai - Shape the ground mixture into small, uniform Villai.

Placement in Mud Agal - Arrange the prepared Villai in a new Agal. Cover with another mud pot of similar size to create a closed chamber. Seal the junction of appropriate brims with appropriate seelai.

Subjecting to Pudam Process - Place the sealed mud pot setup in a heating area. Use 5–10 cow dung cakes. Heat the setup uniformly, ensuring slow and controlled burning to complete the Pudam process.

Collection of Muppu Chunnam - Allow the setup to cool completely after heating. Break open the mud pots carefully to collect the end product. The collected substance is Muppu Chunnam.

Activity 3 : Observation, Discussion & Recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 3.3 : 1. Sanka dravakam**2.Vediyuppu seena oma dravakam**

Total Activity Hours (6 Hours)

1. Sanka dravakam (Gunapadam Thathu - Jeevavaguppu) (3 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (2Hours 30 minutes)

A.Combining the Components - Gather the specified ingredients required for the preparation. Mix the ingredients in the correct proportions.

B.Grinding/Converting into Powder - Grind the mixed components thoroughly to obtain a fine powder. Ensure the powder is uniform, without lumps.

C.Charging the Still - Transfer the powdered mixture into the still. Ensure the powder is evenly distributed in the still to facilitate uniform heat application.

D.Distillation - Apply heat to the still gradually, maintaining a controlled temperature to avoid burning the powder. As the heat increases, the volatile compounds and essential oils from the powdered ingredients will vaporize.

E.Collecting the Distillate - The vaporized compounds will condense into liquid as they pass through the cooling section of the still. Collect the distillate in a clean container. This liquid contains the extracted medicinal essence from the powdered mixture.

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2.Vediyuppu seena oma dravakam (Yacobu vaithiya sinthamani 700) (3 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 :Practical session (2Hours 30 minutes)

A. Collection and Preparation of Ingredients - Vediyuppu, Seenam and Omam in arequired quantity.Pound Vediyuppu and Seenaminto a fine powder using a mortar and pestle.

B. Setting Up the Dravaga Vaalai - Assemble the Dravaga Vaalai (distillation apparatus). Place the pounded Vediyuppu and Seenam mixture into the apparatus.

C. First Heating and Initial Distillate Removal - Heat the mixture in the Dravaga Vaalai.Discard the first portion of the distillate collected initially,

- D. Collection of Middle Distillate - Continue heating and carefully collect the distillate that forms during the middle phase of the process.
- E. Addition of Omam to the Distillate - Add half the amount of Omam (relative to the distillate volume) to the collected middle-phase distillate.
- F. Re-distillation of the Mixture - Transfer the mixture of distillate and Omam back into the Dravaga Vaalai. Heat the mixture again to initiate re-distillation.
- G. Final Collection and Preservation - Collect the final distillate produced from the re-distillation process. Store the final distillate in a clean, airtight container, labelled with the preparation date and formulation name.

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential learning Activity

Experiential-Learning 3.1 : 1. Rasam madithal by senkottai

2.Vangam madithal by lingam

3.Ayam madithal by veeram

Total Activity Hours (8 Hours)

1. Demonstrate the process of Rasam madithal by senkottai (Vithu rasa mezhugu)- Anubhoga Vaithiya Navaneetha Thirattu (3 Hours)

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Practical session (2 hours 15 minutes)

A.. Weigh the Ingredients - Measure Rasam and Serangottai in a 1:2 ratio.

B. Grind the Mixture - Begin grinding the ingredients together using the kalvam. Grind continuously till it attains a waxy consistency

Activity 4 :Observation, Discussion & Recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Vangam madithal by lingam (Rasa kinnam) - Agathiyar 12000 thoguppu(3 Hours)

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3: Practical session (2 hours 15 minutes)

- a. Preparation of Linga kattu
- b. Take equal proportion of Kattiya lingam and velvangan
- c. Melting Velvangan - Place Velvangan in the crucible. Heat the crucible in the furnace until Velvangan melts completely into a liquid form.
- d. Kirasam Process with Lingam - Gradually add the powdered Kattiya Lingam to the molten Velvangan. Stir gently with a clean rod or spatula to ensure proper mixing. Maintain a consistent heat to facilitate the reaction between Lingam and Velvangan.
- e. Formation of Vangan - Continue the heating process till Velvangan interacts with Lingam transits into a fine calx form
- f. Collection of Vangan - Allow the crucible to cool slightly. Carefully scrape out the powdered calx from the crucible. Collect and store the Vangan in a clean, dry container.

Activity 4 : Observation, Discussion & Recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Demonstrate the method of Ayam madithal by veeram (Aya veera chendhuram) (2 Hours)

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (1 hour 15 minutes)

A. Preparation of Ingredients - Ensure Ayam is in a fine powder form after proper purification. Veeram must be purified and ground into a fine powder. Measure equal proportions of Ayam and Veeram.

B. Grinding Process in Kalvam - Place the Ayam and Veeram powders in the Kalvam. Begin grinding the two powders together using kalvam.

C. Observing the Reaction - As grinding progresses, the Ayam "maandu pogum" due to its interaction with Veeram.

D. Final Collection - Once grinding is complete, scrape the product from the Kalvam. Spread it on a clean surface or container to dry completely.

Activity 4 : Observation, Discussion & Recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 3.2 : 1. Padikaara parpam

2. Pancha sathu chenduram

Total Activity Hours (10 Hours)

1. Demonstrate the process of padikaara parpam (Sigicha Ratna Deepam - vaithiya nool) (5 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (4 hours 30 Minutes)

Step 1: Preparation of Naayuruvi Uppu

A. Grinding with Uthamani Charu - Take Naayuruvi uppu and grind it thoroughly with Uthamani charu until it becomes a smooth paste.

B. Making Villai - Shape the paste into villai and dry.

C. First Pudam Process - Place the villai in an agal and subject them to the Pudam process. Repeat this pudam process for second time

Step 2: Collection of Seyaneer

- Take the product from the Pudam process and subject it to a Pani Pudam: and collect seyaneer .

Step 3: Preparation of Padikaaram

A. Frying the Padikaaram: Heat the alum in an iron ladle until it is fully roasted and turns into a soft powdery form.

B. Grinding with Seyaneer: Take the roasted alum and grind it with the collected seyaneer for one samam

Step 4: Final Pudam Process - Subject the material to the Pudam process again, this time using 15 cow dung cakes

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Pancha sathu chenduram (Sigicha Ratna Deepam - vaithiya nool) (5 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product

Activity 3 : Practical session (4 hours 30 Minutes)

1. Ingredient Preparation - Take all the ingredients as per the quantities mentioned in the text.

2. First Grinding - Grind the ingredients thoroughly using Rasathali banana as the grinding medium. Continue grinding until the mixture reaches a waxy consistency

3. Setup for First Pudam - Transfer the ground material into an agal. Cover the material with a seppu kinnam. Place a suitable lid over the kinnam. Seal the junction with seelai mann to make it airtight.

4. First Pudam - Subject the sealed apparatus to the pudam process using 30 cow dung cakes. Allow it to cool naturally after the process is complete.

5. Second Grinding - Open the setup and collect the incinerated material. Grind it again thoroughly using kaadi seyaneer

6. Villai Formation and Drying - Shape the ground paste into villai. Dry the discs completely in shade.

7. Second Pudam - Once dried, subject the villai to a second pudam process using 20 cow dung cakes.
8. Repetition - Repeat steps 5 to 7 (grinding with kaadi seyaneer, making into discs, drying, and pudam) four more times, for a total of five pudam cycles.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 3.3 : 1. Sandarasa parpam by using Sanka dravakam

2. Linga karuppu by using Vedyuppu dravakam

Total Activity Hours (8 Hours)

1. Sandarasa parpam by using sankha dravakam (4 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Practical session (3 hours 30 Minutes)

A.Grinding Lingam with Sanka Dravakam:

- Take the required quantity of Lingam and place it in a grinding stone or mortar.
- Add Sanka Dravakam to the Lingam.
- Grind the mixture thoroughly until you get a fine paste.

B. Burning in Pathanga Karuvi:

- Once the paste is prepared, allow it to dry partially if necessary.
- Transfer the dried paste into the Pathanga Karuvi and seal the apparatus properly
- Heat the apparatus gradually, using controlled heat from cow dung cakes until the contents are burned completely. This process is called Maaranam

C.Repetition of the Process:

- After the first round of burning is completed, allow the apparatus to cool down.
- Collect the residue from the apparatus and repeat the same process.
- Grind the residue with fresh Sanka Dravakam.
- Burn the mixture again using the Pathanga Karuvi.
- This process should be repeated a total of four times

D. Collection of the Precipitate:

- After completing the process for the fourth time, allow the apparatus to cool down.
- Open the apparatus carefully and collect the precipitate, which is the final product.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Linga karuppu (Anubhoga Vaithiya Navaneetha Thirattu part 1) (4 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (3 hours 30 Minutes)

Step 1: Measurement and Mixing

A. Equal Proportions:

Take purified Lingam, Vedyuppu Chunnam, and Maruthondri Kozhundhu in equal proportions.

B.Initial Grinding:

Combine the three ingredients in a mortar and pestle.

Step 2: Grinding with Vedyuppu Dravakam - Gradually add Vedyuppu Dravakam to the mixture. Grind the mixture thoroughly for two samam:

Step 3: Shaping and Drying - Shape the ground mixture into villai and allowed to dry

Step 4: Pudam Process - Place the dried material in a clay crucible or container suitable for the Pudam process using cow dung cakes

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Modular Assessment	
Assessment method	Hour
Instructions - Conduct a structured Modular assessment. Assessment will be for 50 Marks. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per table 6 C. 1. Class presentation (20 Marks) Introduction: Briefly introduce the purpose and rules of the assessment. Presentation Delivery: • Allow each student/group to present in the allotted time. • Observe and take notes for evaluation. Q&A Session: • Encourage questions from peers or assessors to test the presenter's understanding. Evaluate and Grade the presentation using Common criteria include: • Content Knowledge • Organization • Delivery • Visual Aids • Time Management 2. Diagram/Flowchart/Tabulation (15 Marks) Task: Draw a flowchart or tabulate the differences between at least three types of Prayogam (e.g., Marana, Seyaneer, Dravaga) based on the following criteria: • Raw materials • Processing method • End product • Safety standards • Traditional validation 3. Modified essay questions (MEQ) (15 Marks)	4

- Ensure the MEQs align with the module's content and learning objectives.
- Create Staged Questions
- Break the MEQ into sequential parts, where each question builds upon the previous one.
- Assign weightage to each part of the MEQ based on complexity and importance.
- Time duration (e.g., 1–2 hours for a set of MEQs).
- Format for submission (e.g., handwritten, typed, or online).

(OR)

Any practical in converted form can be taken for assessment.(25 marks)

and

Any of the experiential learning can be taken as an assessment.(25 marks)

Module 4 : Unique techniques in drug preparation

Module Learning Objectives

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

- Demonstrate unique techniques like Charakku Vega Vaithal, *Karanool*, *Kayiru*, and *Thiri*
- Discuss the method of preparation and application of Pavanai, Thean, Karuppu and Seyaneer
- Describe the method and significance of the preparation Vattru
- Discuss the technique used in Siddha medicine to prepare the concentrated form of formulation, called madakku.
- Demonstrate the method of simple yet effective traditional methods for preparing higher-order medicines

Unit 1 Charakku vega vaithal ,Kaaranool , Thiri and Kayiru marunthugal

- 4.1.1.Raw drugs pertaining to Charakku vegavaithal and its significance
 - 4.1.1.1.Kombu
 - 4.1.1.2.Thantham
 - 4.1.1.3.Enbu
 - 4.1.1.4.Sangu
 - 4.1.1.5.Kilinjai
 - 4.1.1.6.Palagarai
 - 4.1.1.7.Kulambu
- 4.1.2.Preparation,Significance & therapeutic uses of karanool
- 4.1.3.Definition and examples of Thiri
 - 4.1.3.1.Punngalukku thiri
 - 4.1.3.2.Kuzhipunn thiri
 - 4.1.3.3.Vettilai manjal thiri
 - 4.1.3.4.Sanni theera thiri
- 4.1.4.Definition and examples of Kayiru

4.1.4.1.Jeyaveera ranasingi kayiru
 4.1.4.2.Kabam theera kayiru
 4.1.4.3.Padalathi Mathirai
 4.1.4.4.Chandra pragasa Mathirai
 4.1.4.5.Amara Mathirai

References: 10,18,19,21,26

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Justify the importance of Charakku Vegavaithal in traditional preparation and explain the raw drugs pertaining to this process enlisted 2. Critique the preparation, significance and therapeutic uses of Kaaranool in various clinical cases. 3. Assess the clinical efficacy of Thiri Marunthukal enlisted . 4. Validate the role of Kayiru formulations enlisted.	4	Lecture	CE	Knows-how	DIS,FC,C_L
CO1,CO2,CO3 ,CO4,CO8	1. Perform the process of Kombu & Sangu Vega Vaithal with accuracy, adhering strictly to traditional Siddha methodologies. 2. Execute the method of preparation for Kuzhipun Thiri, ensuring each step is followed with precision and consistency according to classical guidelines.	8	Practical Training 4.1	PSY-MEC	Shows-how	PT,BS,DL
CO1,CO2,CO3 ,CO4,CO8	1. Design the process of Palagarai and Nathai Odu Vega Vaithal 2. Develop the process of Kaaranool preparation 3. Construct the method of preparation of Jeyaveera Ranasingi Kayiru	9	Experiential-Learning 4.1	PSY-ORG	Does	IBL,DIS,RP

Unit 2 Pavanai, Thean, Karuppu and Seyaneer

4.2.1.Definition & Formulations pertaining to Paavanai
 4.2.1.1.Paavana nellikkai
 4.2.1.2.Seeraga paavanai

4.2.1.3.Aya paavanai
 4.2.1.4.Navatchara paavanai
 4.2.1.5.Veera paavanai
 4.2.1.6.Balarasa paavanai
 4.2.1.7.Kandhaga paavanai
 4.2.1.8.Pirandai paavanai
 4.2.1.9.Linga paavanai
 4.2.2.Definition & Formulations pertaining to thean
 4.2.2.1.Poondur thean
 4.2.2.2.Karisalai thean
 4.2.2.3.Meni thean
 4.2.2.4.Vengara thean
 4.2.3.Definition & Formulations pertaining to Karuppu
 4.2.3.1.Lavana karuppu
 4.2.3.2.Aya karuppu
 4.2.3.3.Thalaga karuppu
 4.2.3.4.Pooru karuppu
 4.2.3.5.Veera karuppu
 4.2.3.6.Vaala karuppu
 4.2.4.Definition & Formulations pertaining to seyaneer
 4.2.4.1.Kowsai seyaneer
 4.2.4.2.Kaadi seyaneer
 4.2.4.3.Andu seyaneer
 4.2.4.4.Vazhaipazha seyaneer

References: 7,12,19,22,25,38

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Differentiate the concept of <i>Paavanai</i> with suitable examples. 2. Analyze the <i>Paavanai Marunthukal</i> listed in the sub-topic.	2	Lecture	CAN	Knows-how	C_L,L&G D,BL

	3. Examine the components and formulation principles of the <i>Thean Vagai Marunthukal</i> enlisted. 4. Investigate the formulation techniques of <i>Karuppu</i> and <i>Seyaneer</i> . 5. Analyze the formulations listed under <i>Karuppu</i> and <i>Seyaneer</i> to identify their underlying principles.					
CO1,CO2,CO3,CO4,CO8	1. Perform the process of Balarasa Paavanai, executing each step with precision and adhering strictly to classical Siddha guidelines. 2. Execute the process of Meni Thean, ensuring each step is followed precisely to achieve consistency with traditional methods.	5	Practical Training 4.2	PSY-MEC	Shows-how	BS,DIS,D L
CO1,CO2,CO3,CO4,CO8	1. Calibrate the process of Gandhaga Paavanai 2. Handle the method of preparation of Karisalai Thean 3. Construct the process of Anda Seyaneer 4. Operate the method of preparation of Poora Karuppu	10	Experiential-Learning 4.2	PSY-MEC	Does	BS,PAL

Unit 3 Vattu & Madakku

- 4.3.1. Definition & Formulations pertaining to vattu
 - 4.3.1.1. Inji vattu
 - 4.3.1.2. Santhanathi vattu
 - 4.3.1.3. Thirikadugu vattu
 - 4.3.1.4. Karungkozhi vattu
 - 4.3.1.5. Vembinpattai vattu
 - 4.3.1.6. Kombarakku vattu
- 4.3.2. Definition & Formulations pertaining to Madakku
 - 4.3.2.1. Anda Dravagam
 - 4.3.2.2. Maha guru Dravagam
 - 4.3.2.3. Oma Dravagam
 - 4.3.2.4. Sooda Dravagam

4.3.2.5.Vediyuppu Dravagam
 4.3.2.6.Sitramutti madakku thailam
 4.3.2.7.Karisalai madakku thailam
 4.3.2.8.Vediyuppu madakku seyaneer

References: 20,31,45

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Differentiate the characteristics of the Vattru process. 2. Analyze the formulations listed under the Vattru process. 3. Distinguish the features of the Madakku process. 4. Examine the formulations prepared by the Madakku process.	4	Lecture	CAN	Knows-how	L&PPT ,FC
CO1,CO2,CO3 ,CO4,CO8	1. Perform the process of Santhanathi Vattru, adapting the steps for accuracy and consistency according to classical Siddha texts. 2. Manipulate the process of Madakku Karisalai Thylam, adjusting techniques based on practical observations to achieve the desired therapeutic quality. 3. Formulate the method of preparation for Oma Dravakam, adapting classical methods to ensure the formulation aligns with both traditional and modern therapeutic standards.	8	Practical Training 4.3	PSY-ADT	Shows-how	DL,IBL,P rBL
CO1,CO2,CO3 ,CO4,CO8	1. Imitate the process of Sitramutti Madakku Thylam 2. Follow the method of preparation of Inji Vattru 3. Practice the process of Rasa Chendhura Dravakam	10	Experiential-Learning 4.3	PSY-GUD	Does	BS,PT

Unit 4 Traditional simple methods for higher order medicine preparation

4.4.1.Formulations prepared by traditional simple methods
 4.4.1.1.Sootchuma bedhi mezhugu
 4.4.1.2.Kaara lavana parpam

4.4.1.3.Padikaara chendhuran
 4.4.1.4.Aya parpam
 4.4.1.5.Linga mezhugu
 4.4.1.6.Padiga poonaga chendhuran
 4.4.1.7.Vanga parpam
 4.4.1.8.Rasa chenduran
 4.4.1.9.Navanatha chenduran
 4.4.1.10.Kanthaga mezhugu
 4.4.1.11.Sugapirasavathirkku linga chendhuran

References: 7,9,11,18,29,54

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Analyze the traditional simple methods used for preparing higher-order medicine formulations. 2. Explain about the higher order formulations prepared by traditional simple methods listed in the subtopic. 3. Differentiate between higher-order medicine formulations prepared by traditional simple methods and those prepared by wide-ranging processes.	5	Lecture	CAN	Knows-how	C_L,FC,RL
CO1,CO2,CO3 ,CO4,CO8	1. Demonstrate the process of Lakshmi Narayana Chendhuran with precision, adhering strictly to classical Siddha preparation methods. 2. Demonstrate the method of preparation for Nunakkai Parpam, ensuring adherence to classical protocols and achieving accurate results. 3. Demonstrate the process of Padigi Thalaga Parpam, ensuring consistency and precision in following the prescribed traditional steps.	9	Practical Training 4.4	PSY-MEC	Shows-how	PL,DL,FC
CO1,CO2,CO3 ,CO4,CO8	1. Operate the process of Saveera Chendhuran 2. Perform the method of preparation of Lavana Karuppu 3. Handle the process of Vellai Paadana Mezhugu	10	Experiential-Learning 4.4	PSY-MEC	Does	Mnt,BL

	4. Execute the method of Padiga Poonaga Chendhuram				
--	--	--	--	--	--

Practical Training Activity

Practical Training 4.1 : 1. Kombu & Sangu vega vaithal
2.Kuzhipun thiri

Total Activity Hours (8 Hours)

1. Kombu / Sangu vega vaithal (4 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (3 Hours 30 minutes)

A. Put the Kombu / Sangu inside the clay pot (Agal).

B. Seal the Pot - Make a thick paste using Seelai Mann and water. Apply this paste around the rim of the pot's lid to seal it tightly. Repeat the sealing process 7 times, letting each layer dry a bit before applying the next one.

C.Pudam Process - Once sealed, place the pot in a furnace or a traditional heating setup.Surround the pot with cow dung cakes or firewood and light them to heat the pot.Maintain a steady heat for the required duration (this depends on the type of drug).

D. Cool and Open- Let the pot cool down completely after heating.Break the clay seal carefully and open the pot to collect the processed drug.

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the method of preparation of Kuzhipun thiri (Agathiyar pallu 200) (4 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (3 Hours 30 minutes)

A.Grinding Rasam and Kandhagam - Take equal quantities of purified rasam and kandhagam. Grind them together in the kalvam until the mixture turns black.

- B.Preparation of the Remaining Drugs - Take the other prescribed ingredients (as per the formulation). Powder them finely using a traditional grinding method
- C. Mixing - Add the powdered drugs to the blackened mixture of rasam and kandhagam. Transfer the entire mixture to a kalvam and grind further for 1 samam
- D.Melt and Filter Wax - Melt the wax over low heat. Filter it to remove any impurities.
- E. Combining the Mixture with Wax - Slowly add the finely ground mixture to the melted wax while stirring continuously. Ensure a uniform blend.
- F.Preparation of the Thiri (Wick) - Prepare a cotton wick by applying the wax-drug mixture. Let the wick dry and set.

Activity 3: Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 4.2 : 1.Balarasa paavanai

2.Meni thean

Total Activity Hours (5 Hours)

1.Demonstrate the process of Balarasa paavanai (Anubhoga Vaithiya Navaneetha Thirattu part 1) (4 Hours)

Instruction to teacher - Introduction and Demonstration(10 minutes)

The teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (3 Hours 30 minutes)

A.Take equal proportions of Valai Rasam and Seenakkaram.

B.Grinding - Add clean water to the mixture. Grind thoroughly for one hour to form a smooth, homogeneous mixture.

C.Washing - Transfer the ground mixture to a container with water. Stir well and filter using a clean cloth or sieve to separate the impurities.

D.Reprocessing -Add fresh Seenakkaram to the filtered material. Repeat the grinding, washing, and filtering process twice.

E.Drying -Spread the filtered material thinly on a clean surface exposed to sunlight for drying. Allow it to dry completely.

F.Squeezing - Once dry, collect the material and place it in a thick cotton cloth. Squeeze firmly to extract the refined product.

G.Repetition - Repeat the entire process 11 to 21 times, each time with fresh Seenakkaram and water. Ensure complete drying and squeezing at each stage.

Activity 3: Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Meni thean (Marunthu Sei Iyalum Kalaiyum) (1 Hour)

Instruction to teacher - Introduction and Demonstration (5 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (5 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (45 Minutes)

A. Extract Preparation - Collect fresh Kuppi Meni and Kammaru Vetrilai leaves. Wash thoroughly to remove dirt and impurities. Crush or grind the leaves separately to extract their juices (charu). Strain the juice using a clean cloth or sieve.

B. Milagu Chooranam -Take Milagu and grind it into a fine powder using pounding apparatus. Ensure the powder is smooth and free of lumps.

C. Vellerukan Poo Paste - Take fresh Vellerukan flowers, clean them, and grind them into a fine paste

D. In a kalvam, grind the following- Kuppi Meni Extract and Kammaru Vetrilai Charu , Vellerukan Poo Paste, Milagu Chooranam , honey and Kirambu Ney

Activity 3 : Observation, Discussion & recommendation (5 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 4.3 : 1. Santhanathi vattru

2. Madakku karisalai thylam

3.Oma dravakam

Total Activity Hours (8 Hours)

1. Demonstrate the process of Santhanathi vattru (Theran aruliya paanda puthayal & vattru) (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (1 Hour 30 minutes)

Measure the Ingredients - Take Santhana Thool, Paneer, Karkandu in appropriate proportion

B. Prepare the Mixture - Grind the Karkandu into a fine powder using a Kalvam. In a clean mixing bowl, combine the Santhana Thool, powdered Karkandu, and Paneer, and mix thoroughly

C. Prepare Vattru - Prepare Vattru by using Vaalai

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Madakku karisalai thylam (Marunthu Sei Iyalum Kalaiyum) (3 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (2Hours 30 minutes)

A. Preparation of Karisalai Charu - Karisalai charu is obtained by the process of pounding and squeezing

B. Measure an equal amount of Karisalai Charu and Gingelly oil to prepare the Thylam.

C. Mixing and Boiling the First Batch - In a flat-bottomed pan or suitable boiling vessel, combine Karisalai Charu and Gingelly oil in equal proportions. Stir gently to ensure both are well mixed. Begin heating the mixture over low to medium heat. Boil the mixture until it reaches Thyla Paakam. This typically occurs when most of the water from the Karisalai Charu has evaporated.

D. Adding Karisalai Charu Again - Once the mixture has reached Thyla Paakam , add an equal amount of fresh Karisalai Charu to the oil.

E.Repeat the Boiling Process - Bring the mixture to a boil again, and continue the gentle boiling process until it reaches the same Thyla Paakam consistency as before.

F. Final Steps:

i) Straining -Strain the oil through a clean cloth or sieve

ii) Storage - Transfer the finished Madakku Karisalai Thylam into a clean, airtight container. Preferably, use a glass or ceramic container to prevent contamination.

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Demonstrate the method of preparation of Oma dravakam (Yacobu vatha vaithiya koorvai) (3 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (2Hours 30 minutes)

A. Soaking the Omam - Take the required quantity of Omam in a clean vessel. Add two parts of water to the Omam. Cover the vessel and let the mixture soak for three days.

B.First Distillation - Transfer the soaked mixture (both water and Omam) into the distillation apparatus. Heat the apparatus gently to bring the water to a boil. Collect the

distillate (Oma Dravakam) in a separate flask. This is the first round of distillation.

C. Repeating the Process (Madakku) - Measure the volume of the collected Oma Dravakam. Take a fresh quantity of Omam equal in weight to the collected distillate. Add the collected Oma Dravakam back to the new batch of Omam. Repeat the distillation process.

D. Performing Five Cycles - Continue the Madakku process for a total of five cycles. In each cycle, fresh Omam is added in a quantity proportional to the previously collected distillate. Ensure proper distillation in each cycle to enhance the potency of the Oma Dravakam.

E. Final Collection - After the fifth distillation, collect the final Oma Dravakam. Store it in a clean, air-tight container to preserve its medicinal properties.

Activity 3: Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 4.4 : 1.Lakshmi Narayana Chenduram

2.Nunakkai parpam

3.Padigi thalaga parpam

Total Activity Hours (9 Hours)

1. Demonstrate the process of Lakshmi Narayana chendharam (Vaithiya perungkural) (3 Hours)

Instruction to teacher - Introduction and Demonstration(15 minutes)

The Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (2Hours 15 minutes)

A. Preparation of Ingredients - Carefully measure 1 part of Rasa Chenduram and half a part of Venkaaram.

B.. Grinding the Ingredients -Take both Rasa Chenduram and Venkaaram and place them into a clean mortar.Continue grinding until the mixture forms a fine, homogeneous powder.

C. Store the Powder - Transfer the final mixture of Lakshmi Narayana Chenduram into a clean, airtight container to preserve its medicinal properties. Store the container in a cool, dry place away from moisture and light to maintain the potency of the preparation.

Activity 3 : Observation, Discussion & recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2.Demonstrate the method of preparation of Nunakkai parpam (Gunapadam – Mooligaivaguppu) (2 Hours)

Instruction to teacher - Introduction and Demonstration (15 minutes)

The teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the

key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 :Practical session (1Hours 15 minutes)

1. Prepare the Raw Materials -Take Nunakkai and clean it thoroughly to remove any dirt or impurities. Dry the Nunakkai if needed. Take Uppu in equal proportion to the Nunakkai.

2. Layer the Materials - Place the cleaned Nunakkai and Uppu into the earthen vessel

3. Seal the Vessel -Cover the earthen vessel with its lid.Seal the gap between the lid and the vessel using seelaimann plaster

4. Arrange the Pudam Setup - Place the sealed earthen vessel on a stable platform. Surround the vessel with 10 cow dung cakes

5. Pudam Process - Ignite the cow dung cakes and allow the vessel to be heated uniformly.The heat from the burning cow dung cakes calcines the materials inside the vessel, converting them into a fine, ash-like powder (parpam).Allow the fire to burn out completely.

6. Cooling and Collecting- Once the fire is extinguished and the vessel has cooled to room temperature, carefully remove the lid. Collect the calcined material (Nunakkai Parpam) from the vessel.

7. Grinding and Sieving -Grind the calcined material into a fine powder using a kalvam

Activity 3 : Observation, Discussion & recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Demonstrate the process of Padigi thalaga parpam (Vaithiya perungkural) (4 Hours)

Instruction to teacher - Introduction and Demonstration(15 minutes)

The Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (3 Hours 15 minutes)

Take equal parts of Thalagam and Padikaaram.Grind with Kuppaimeni charu to form a smooth paste. Make into Villai and dry it. Place the dried Villai in an Agal. Seal the Agal with Seelaimann. Subject to Kukkuda Pudam using cow dung cakes. Cool, open, and collect the final product.

Activity 3 : Observation, Discussion & recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential learning Activity

Experiential-Learning 4.1 : 1.Palagarai and Nathai odu vega vaithal

2. Kaaranool preparation

3.Jeyaveera ranasingi Kayiru

Total Activity Hours (9 Hours)

1.Palagarai and Nathai odu vega vaithal (3 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3: Practical session (2 Hours 30 Minutes)

A.Place the raw drug in an Agal

B.Seelaimann Plaster Application for seven times

C.Pudam Process using cow dung cakes

D. Finally, open agal carefully and weigh the end product

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Kaaranool preparation (Siddhar aruvai maruthuvam) (4 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (3 Hours 30 Minutes)

A. Collecting & Mixing Latex - Collect the Uthamanipal and Erukkampal in equal proportions in a clean container. Stir the mixture well to ensure uniform consistency.

B.Adding Thurusu - Add a small amount of thurusu to the latex mixture. Stir gently to dissolve it completely.

C.Incorporating Manjal - Gradually add turmeric powder to the mixture and stir well.

D.Thread Application - Take a cotton thread and immerse it in the prepared mixture. Ensure the thread is fully coated with the solution.

F. Drying - Remove the coated thread from the mixture and hang it in a shaded, ventilated area to dry completely. Avoid direct sunlight

G.Storage - Once dried, the thread is ready for use. Store it in a clean, dry container to protect it from moisture and contamination.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing

instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Demonstrate the method of preparation of Jeyaveera Ranasingi Kayiru (Gunapadam Thathu - Jeevavaguppu) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (1 Hour 30 Minutes)

A.Preparation of Oil - Take the oil in a new mud pot. Heat the oil gently on a low flame until all moisture content is evaporated. Set the oil aside to cool slightly after boiling.

B.Grinding the Ingredients -Take venkaram, veeram, and urad dhal flour in appropriate proportions. Place these ingredients with the above prepared oil in a kalvam .Add rainwater little by little to the ingredients while grinding. Grind the mixture continuously until it achieves a waxy consistency.

C.Forming the Pills - Once the desired consistency is achieved, shape the mixture into pills.Let the pills dry naturally in a clean, dust-free environment.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 4.2 : 1.Gandhaga paavanai

2.Karisalai thean

3. Anda Seyaneer

4.Pooru karuppu

Total Activity Hours (10 Hours)

1.Demonstrate the process of Gandhaga paavanai (Anubhoga Vaithiya Navaneetha Thirattu part 1) (4 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product

Activity 3 : Practical session ((3Hours 30 Minutes)

A. Prepare Thakkali Samoola Charu

B. Setting Up the Earthen Pot -Take Thakkali Samoola Charu in an earthen pot. Cover the mouth of the pot with a Seelai Thuni .Place raw Gandhagam on the cloth, ensuring it is evenly distributed.

C. Burying the Pot: Bury the pot in the soil up to its neck.

D. Covering with Agal: Place an agal over the pot to seal it.

E. Incineration - Arrange cow dung cakes around and on top of the pot. Ignite the cow dung cakes and allow the heat to melt the sulfur. As the sulfur melts, it drips through the Seelai Thuni into the Thakkali Samoola Charu in the pot.

F. Collection - Once the process is complete and the setup has cooled, open the pot. Carefully collect the molten Gandhagam that has merged with the Thakkali Samoola Charu.

G. Washing and Drying - Remove the collected Gandhagam and wash it thoroughly with clean water to remove any impurities. Dry the Gandhagam in sunlight until it is completely free of moisture.

H. Repetition: Repeat the entire process 11 times

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the method of preparation of Karisalai thean(Marunthu Sei Iyalum Kalaiyum) (1 Hour)

Activity: 1 Group discussion (5 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (5 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product

Activity 3 : Practical session (45 Minutes)

A.Preparation of the Herbs - Collect Manjal Karisalai, Keezhanelli, and Nerunjil in appropriate proportions as specified. Clean the herbs thoroughly to remove dirt and impurities. Chop the herbs into smaller pieces for easier grinding.

B.Grinding the Herbs - Place the cleaned herbs on the kalvam. Grind the herbs together thoroughly to form a fine, wet paste- karkam

C.Adding Honey - Once the herbs are ground into a smooth paste, add pure honey to the karkam gradually. Continue grinding the mixture on the kalvam. Ensure that the honey is evenly blended with the karkam.Grind continuously until the moisture content reduces and the mixture achieves a thicker consistency.

D.Storage- Transfer the prepared Karisalai Thean into a clean, dry container.Seal the container tightly to preserve the preparation.

Activity 4 :Observation, Discussion & recommendation (5 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Demonstrate the process of Anda Seyaneer (Sigicha Ratna Deepam- vaithiya sindhamani) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product

Activity 3 : Practical session (1Hour 30 Minutes)

A. Separate the Egg Whites - Break 5 eggs and carefully separate the egg whites from the yolks.Transfer the egg whites into a clean, dry glass bottle.

B.Prepare the Powder -Take Veeram, Pachai Karpooram, and Vedyuppu Chunnam 1 varagan each.Use a kalvam to grind these ingredients into a fine powder.
C.Mix with Egg Whites- Add the finely ground powder mixture into the bottle containing the egg whites. Seal the bottle and shake it vigorously until the contents are well mixed.Leave the mixture in the bottle, sealed, for one week.

D. Collection of Seyaneer - After a week, carefully collect the Anda Seyaneer separating it from any residues.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

4. Demonstrate the method of preparation of Poora karuppu (Anubhoga Vaithiya Navaneetha Thirattu part 1) (3 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product

Activity 3 : Practical session (2Hours 30 Minutes)

A.Mixing and Grinding - Take Pooram and Vedyuppu Chunnam in equal proportions (1 part each). Add Kattamanakku Kozhunthu (8 parts) to the above mixture. Grind the mixture thoroughly until it forms a homogenous paste, karkam

B.Shaping and Drying - Shape the prepared karkam into villai. Allow the villai to dry completely in sunlight

C.Agal Setup - Place the villai inside an agal. Cover the agal with a lid securely. Seal the lid with seelaimann to ensure it is airtight. Apply five layers of clay plaster

D.Pudam Process - Subject the sealed agal to the pudam process with cow dung cakes.Once the process is complete, allow the setup to cool naturally.

E. Final Product - After cooling, open the agal to retrieve the Poora Karuppu, grind it well and store

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 4.3 : 1.Sitramutti madakku thylam

2.Inji vattru

3.Rasa chendhura dravakam

Total Activity Hours (10 Hours)

1.Demonstrate the process of Sitramutti madakku thylam (Theran thyla varkka churukkam) (5 Hours)

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (4hours 15 minutes)

- A. Prepare the Sitramutti Kashayam - Crush or break the roots into fine powder. Boil the roots with 32 parts water. Continue boiling until the volume reduces to one part. Strain the liquid to separate the decoction.
- B. Prepare the Sitramutti Karkam - Grind fresh Sitramutti Ver with milk into a fine paste.
- C. Mix the Ingredients - Take the prepared Sitramutti Kashayam, Karkam, milk, and gingly oil in the required proportions. Mix them thoroughly in a vessel.
- D. Boiling with Sitramutti Viragu - Boil the mixture over a low flame by using sitramutti viragu, stirring continuously. Heat until it reaches a venmezhu consistency.
- E. Filtering - After achieving the desired consistency, filter the oil using a fine cloth to remove all solid residues.
- F. Repeat the Process (7 Times) - For enhanced potency, repeat the process 7 times: Add fresh kashayam, karkam and milk to the filtered oil. Boil again with Sitramutti Viragu until venmezhu consistency is achieved.
- G. Final Storage - After completing all 7 cycles, allow the oil to cool. Store it in a clean, dry, airtight container, preferably made of glass.

Activity 4 : Observation, Discussion & recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the method of preparation of Inji vattu (Theran aruliya paanda puthayal & vattu) (1 Hour)

Activity: 1 Group discussion (5 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (5 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (45 Minutes)

- A. Prepare the Ginger - Take fresh ginger and wash them thoroughly to remove dirt. Peel off the outer skin of the ginger
- B. Add water and sugar - In a large container, add sugar and water in appropriate proportion
3. Soak the Ginger - Place the prepared ginger slices into the sugar solution. Ensure the ginger is fully submerged in the liquid. Cover the container with a lid or clean cloth
4. Soaking Period - Allow the ginger to soak in the sugar solution for 3 days and prepare vattu

Activity 4: Observation, Discussion & recommendation (5 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Demonstrate the process of Rasa chendhura dravakam (Siddhargal rasavathakalai) (4 Hours)

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (3 Hours 15 minutes)

- A. Grinding the Ingredients - Take equal proportions of Annabedhi, Padikaaram, Vedyuppu, Kariyuppu, and Thurusu. Grind each ingredient separately using a kalvam until they form a fine powder.
- B. Charging the Still - Combine the ground powders and place them into the distillation apparatus (still). Assemble the distillation apparatus securely to prevent leakage of vapors.
- C. Distillation - Heat the still gently to initiate the process. Collect the distillate (dravakam) in a clean container. This liquid is the initial Rasa Chendhura Dravakam. Stop heating when no more liquid distillate is collected.
- D. Reprocessing with Collected Dravakam - Take the same set of ingredients in the same proportions as before. Grind them with the collected dravakam
- E. Repeat the Distillation Process - Load the mixture into the distillation apparatus again. Repeat the heating and distillation process. Collect the distilled dravakam.
- F. Repeat for Enhanced Potency - Continue repeating the grinding with the newly collected dravakam and distillation process as many times as required to achieve the desired potency and purity.

Activity 4 : Observation, Discussion & recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 4.4 : 1. Saveera chendhuram

2. Lavana karuppu

3. Vellai paadana mezhugu

4. Padiga poonaga chendhuram

Total Activity Hours (10 Hours)

1. Demonstrate the process of Saveera chendhuram (Gunapadam Thathu - Jeevavaguppu) (3 Hours)

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (2 Hours 15 Minutes)

A.. Purify the Ingredients :

B. Powder the Ingredients - Take Saveeram and Venkaram in equal proportions. Grind each ingredient separately into a fine powder using a kalvam.

C. Roasting in Agal - Place the powdered mixture into the agal. Roast the mixture over a low flame. Stir continuously using a spatula to prevent the powder from clumping or sticking to the surface.

4. Monitor the Color Change- During roasting, observe the color change of the mixture.

5. Cooling - Once the desired color and texture are achieved, remove the agal from the flame. Allow the mixture to cool naturally to room temperature.

6. Grinding and Sieving (Optional) - After cooling, grind the roasted mixture once more to ensure it is a fine powder.

Activity 4: Observation, Discussion & recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the method of preparation of Lavana karuppu (Kannusamy Parambarai Vaithiyam) (3 Hours)

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (2 Hours 15 Minutes)

A. Take 8 parts of kariuppu powder, 1 part of chukku pieces and 11/2 parts of omam in an agal,

B. Layering the Ingredients - Take an agal and start layering the ingredients in the following order: Spread half of the Kariyuppu powder evenly at the bottom of the agal. Place half of the Omam over the Kariyuppu layer. Spread the Chukku pieces evenly as the next layer. Add the remaining Omam over the Chukku layer. Finally, spread the remaining Kariyuppu powder on top.

C. Sealing the Vessel - Cover the agal with its lid. Seal the edges of the lid using Seelaimann plaster

D. Pudam Process - Place the sealed agal in a suitable spot for firing. Arrange 15 cow dung cakes around and over the vessel in a manner that ensures even heating. Ignite the cow dung cakes and let them burn completely. The heat from the burning cow dung cakes will calcine the ingredients inside the agal, converting them into the desired Lavana Karuppu form.

E. Cooling - Allow the setup to cool naturally after the fire has extinguished.

F. Collection of Lavana Karuppu - After cooling, carefully open the lid of the agal, grind it again. Collect the processed Lavana Karuppu, which should be a fine, uniform black substance.

Activity 4 : Observation, Discussion & recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Demonstrate the process of Vellai paadana mezhugu (Gunapadam Thathu - Jeevavaguppu) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (1 Hour 30 Minutes)

.A. Purify and Powder Vellai Paadanam - Take Vellai Paadanam, purify it by appropriate procedure. Grind it finely until it forms a smooth powder and sieve.

- B. Melt the Wax - Melt the wax using a double boiler method to ensure even heating and to prevent burning. Stir occasionally to speed up the melting process.
- C. Add the Vellai Paadana Powder - Once the wax has melted, reduce the heat to maintain a warm liquid state. Gradually add the powdered Vellai Paadanam into the melted wax while continuously stirring to avoid clumping. Continue stirring until the powder is evenly dispersed in the wax.
- D. Blend Thoroughly - Keep stirring for a few more minutes to ensure the powder is fully incorporated into the wax.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

4. Demonstrate the method of Padiga poonaga chendhuram (Balaramaiya V. Anubava Siddha Vaithiya Muraigal) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (1 Hour 30 Minutes)

A. Take equal parts of purified Poonagam and Padikaram.

.B. Prepare the Poonagam - Soak the Poonagam in buttermilk for 1 hour. After soaking, grind the Poonagam thoroughly with Thulasi Chaaru until a smooth paste is achieved. Dry the paste by suriyapudam process

C. Prepare the Padikaram - Fry the Padikaram lightly in a dry pan

D. Grinding the Mixture - Combine the dried Poonagam and fried Padikaram. Grind them together in the Kalvam until a fine, uniform powder is obtained. Ensure thorough grinding to achieve a consistent texture and potency.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Modular Assessment

Assessment method

Instructions - Conduct a structured Modular assessment. Assessment will be for 75 Marks. Keep a structured marking pattern. Use different assessment methods in each module for the semester. Keep a record of the structured pattern used for assessment. Calculate the Modular grade point as per table 6 C.

1. Problem-based Assignment (20 Marks)

Selection of a problem: Choose a problem that aligns with the module's content and objectives. The problem should be open-ended, with multiple possible approaches or solutions.

Hour

6

- **Problem Understanding:** Students should analyse the problem and identify key elements.
- **Research and Analysis:** Gather data and research relevant to the problem.
- **Solution Design:** Brainstorm and develop potential solutions.
- **Implementation:** Implement the most viable solution (if applicable).
- **Evaluation:** Assess the results or reflect on the process.
- **Deliverables:** Students should submit their findings in the required format (e.g., a written report, prototype, or video).

2. Mcq tests (25 Marks)

i. Identify the specific learning outcomes and module objectives, the test aims to assess.

ii. **Question Types:** Use various MCQ formats:

- Single correct answer
- Multiple correct answers
- True/False
- Assertion-Reason

iii. For paper-based tests, use OMR sheets or manual checking.

3. Modified essay questions (MEQ) (30 Marks)

Ensure the MEQs align with the module's content and learning objectives.

- Create Staged Questions
- Break the MEQ into sequential parts, where each question builds upon the previous one.
- Assign weightage to each part of the MEQ based on complexity and importance.
- Time duration (e.g., 1–2 hours for a set of MEQs).
- Format for submission (e.g., handwritten, typed, or online).

(OR)

Any practical in converted form can be taken for assessment.(30 marks)

and

Any of the experiential learning can be taken as an assessment. (45 marks)

Module 5 : Marunthukal and Upakaranangal

Module Learning Objectives

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

Define *Marunthu* (medicines) and explain its classification.

Describe the preparation methods for *Ull Marunthu* (internal medicines) and *Pura Marunthu* (external medicines), highlighting key formulations.

Identify and explain the traditional instruments used to prepare medicines, emphasizing their roles in ensuring quality and accuracy.

Discuss the purification processes involved in the prepared medicines to ensure their effectiveness, safety, and medicinal potency.

Unit 1 Definition, types of Ul marunthukal and its preparations

5.1.1. Definition of Marunthu

5.1.2. Marunthu pakkuva gunam

5.1.3. Marupaga gunam

5.1.4. Maruthunnum kalam

5.1.5. Marunthugalin seerana kalam

5.1.6. Diet to administer after medication (Vayilidum vasthugal)

5.1.7. Marunthin ethir vilavugal

5.1.8. Ul marunthukal

5.1.9. Chaaru

5.1.9.1. Perumpadu – charu

5.1.9.2. Neeradaippu – charu

5.1.9.3. Siruneeril raktham kanuthal – charu

5.1.9.4. Vippuruthi – charu

5.1.9.5. Neererivu - charu

5.1.10. Kashayam

- 5.1.11.Types of kashayam
- 5.1.12.Kashaya panda ilakkanam
- 5.1.13.Principle/rule of boiling kashayam
- 5.1.14.Principle/rule of consumption of kashayam
- 5.1.15.Formulations pertaining to Kashayam
 - 5.1.15.1.Vaivu – kudineer
 - 5.1.15.2.Ushna vayitru vali – kudineer
 - 5.1.15.3.Meghavayuvirkku kiyazham
 - 5.1.15.4.Andavayuvirkku kiyazham
 - 5.1.15.5.Ushna bethikku kiyazham
 - 5.1.15.6.Ratha kakkalukku kiyazham
 - 5.1.15.7.Prasivitha sreekalukku alukku velipada kiyazham
 - 5.1.15.8.Pancha mooli kiyazham
 - 5.1.15.9.Veppilai karukku kiyazham
 - 5.1.15.10.Nayuruvi karukku kiyazham
- 5.1.16.Adai
 - 5.1.16.1.Moola vayu adai
 - 5.1.16.2.Moola kiraniku adai
 - 5.1.16.3.Irumal theera adai
- 5.1.17.Chooranam
- 5.1.18.Choorana vithi (Principle/rule)
- 5.1.19.Principle/rule of preparation of chooranam using drug containing oil content
- 5.1.20.Formulations pertaining to chooranam
 - 5.1.20.1.Naagara singathi chooranam
 - 5.1.20.2.Karisalankanni chooranam
 - 5.1.20.3.Parpodi chooranam
 - 5.1.20.4.Kabangusa chooranam
 - 5.1.20.5.Chandira kanthi chooranam
 - 5.1.20.6.Poonaga chooranam
 - 5.1.20.7.Kaichukatti chooranam
 - 5.1.20.8.Senkottai chooranam
- 5.1.21.Pittu

- 5.1.21.1.Moolakirani pittu
- 5.1.21.2.Vatham theera pittu
- 5.1.22.Vadagam
 - 5.1.22.1.Karumeghathirkku seeraga vadagam
- 5.1.23.Kirutham or Nei
- 5.1.24.Quantity of nei in formulation
- 5.1.25.Consistency of nei
- 5.1.26.Formulations pertaining to nei
 - 5.1.26.1.Santhanathi kirutham
 - 5.1.26.2.Seenthil kirutham
 - 5.1.26.3.Seviya kirutham
 - 5.1.26.4.Madhulai kirutham
 - 5.1.26.5.Megarajanga kirutham
- 5.1.27.Rasayanam
 - 5.1.27.1.Moolanoikku kadukkai rasayanam
 - 5.1.27.2.Shayakulanthaga rasayanam
 - 5.1.27.3.Konrai rasayanam
 - 5.1.27.4.Kuppaimeni rasayanam
 - 5.1.27.5.Inji rasayanam
- 5.1.28.Ilakam
- 5.1.29.Quantity of sugar, honey,ghee
- 5.1.30.Explanation of paagu patham (Thanthu paga vilakkam)
- 5.1.31.Formulations pertaining to ilakam
 - 5.1.31.1.Milagu ilakam
 - 5.1.31.2.Inji ilakam
 - 5.1.31.3.Karpoorathy ilakam
 - 5.1.31.4.Sathapala ilakam
- 5.1.32.Thailam
- 5.1.33.Principle/rule of preparation of kashayam added in thailam
- 5.1.34.Principle/rule of adding milk in karkam
- 5.1.35.Special principle of mudi thailam
- 5.1.36.Consistency of thailam and its uses

- 5.1.37.Purification of thailam
- 5.1.38.Vessel for thailam process
- 5.1.39.Firewood for thailam
- 5.1.40.Source of thailam (Thaila pirappu vagai)
- 5.1.41.Types of thailam based on application
- 5.1.42.Principle to preparation of thailam
- 5.1.43.Efficacy & potency of thailam
- 5.1.44.Characters of thailam
- 5.1.45.Principle to add milk and water in thailam
- 5.1.46.Principle to ground karkam
- 5.1.47.Pathiram pazhagum vithi
- 5.1.48.Karuvigal for specific actions (Thozhilkuriya karuviyum, Thailam thuzhavum karuvi)
- 5.1.49.Thaila paga vithi
- 5.1.50.Vadikkum pathira ilakanam
- 5.1.51.Thailam vadikkum ilakanam
- 5.1.52.Purification of thailam
- 5.1.53.Siriya thaila paga vithi.
- 5.1.54.Formulations pertaining to thailam
 - 5.1.54.1.Nun puzhu ennai
 - 5.1.54.2.Andaviyathi – ennai
 - 5.1.54.3.Vaipunn soolai – ennai
 - 5.1.54.4.Araiappu – ennai
 - 5.1.54.5.Koozhpandathu ennai
 - 5.1.54.6.Puraigal – thailam
 - 5.1.54.7.Mega Sanjeevi ennai
 - 5.1.54.8.Karisalai ennai
 - 5.1.54.9.Genthaga thailam
 - 5.1.54.10.Malattu kanthaga thailam
 - 5.1.54.11.Agathiyar Sanjeevi ennai
- 5.1.55.Maathirai
- 5.1.56.Grinding method
- 5.1.57.Consistency of rolling

5.1.58.Stage to add aromatic substances
5.1.59.Munn pin serkka vendiyavai
5.1.60.Formulations pertaining to mathirai
5.1.60.1.Ema Thanda kuligai
5.1.60.2.Bala viresana kuligai
5.1.60.3. Sinthamani kuligai
5.1.60.4.Vatha sanni kuligai
5.1.60.5.Anandha bairava mathirai
5.1.60.6.Nabi mathirai
5.1.60.7.Amurthathi kuligai
5.1.60.8.Lakshmi Narayana maathirai
5.1.60.9.Ayathanga maathirai
5.1.60.10.Thamira boopathy kuligai
5.1.60.11.Kadikkara maathirai
5.1.60.12.Veera kuligai
5.1.60.13.Sagala mantha kuligai
5.1.60.14.Agathiyar kadugurokini maathirai
5.1.60.15.Kodasuzhi maathirai
5.1.61.Thiravagam
5.1.62.Amount of end product estimation of thiravagam
6.1.63.Thiravagam iranga kuri
6.1.64.Formulations Pertaining to Thiravagam
6.1.64.1.Thasa lavana thiravagam
6.1.64.2.Ashtanga thiravagam
6.1.64.3.Kanthaga thiravagam
5.1.65.Mezhugu
5.1.66.Method of consumption of mezhugu
5.1.67.Effects of chronic consumption of mezhugu
5.1.68.Formulations pertaining to mezhugu
5.1.68.1.Gunma bedhi mezhugu
5.1.68.2.Vishamirtha mezhugu
5.1.68.3.Thanga linga mezhugu

5.1.68.4.Poonaga mezhugu
5.1.68.5.Kantha mezhugu
5.1.68.6.Akkarakara mezhugu
5.1.69.Pathangam
5.1.70.Formulations pertaining to Pathangam
5.1.70.1.Kummati kai pathangam
5.1.70.2.Veera rasa pathangam
5.1.70.3.Kalanthaga Gowri pathangam
5.1.70.4.Thalaga pathangam
5.1.71.Chendhuras
5.1.72.Formulations pertaining to Chendhuras
5.1.72.1.Vediyuppu chendhuras
5.1.72.2.Genthithara chendhuras
5.1.72.3.Vanga arithara chendhuras
5.1.72.4.Ekku Suvarna chendhuras
5.1.72.5.Kadikara linga chendhuras
5.1.72.6.Pancha sathu chendhuras
5.1.73.Parpam
5.1.74.Method of plaster (seelai)
5.1.75.Principle of pudam
5.1.76.Ill effects due to increase or decrease of cow dung cakes (varatti)
5.1.77.Neertrinagalin gunam
5.1.78.Formulations pertaining to parpam
5.1.78.1.Suram – Arithara parpam
5.1.78.2.Vedikara silasathu parpam
5.1.78.3.Kara vediyuppu parpam
5.1.78.4.Naaga sangu parpam
5.1.78.5.Thiri vanga parpam
5.1.78.6.Kasakudori parpam
5.1.78.7.Poonaga parpam
5.1.78.8.Kanthaga paga parpam
5.1.78.9.Genthi poora parpam

5.1.78.10.Padikara parpam
 5.1.79.Kattu
 5.1.79.1.Veera kattu
 5.1.79.2.Linga kattu
 5.1.79.3.Pooru kattu
 5.1.80.Kalangu
 5.1.80.1.Aya kalangu
 5.1.80.2.Sembu Kalangu
 5.1.81.Chunnam
 5.1.81.1.Sara chunnam
 5.1.81.2.Genthaga chunnam
 5.1.81.3.Puli chunnam
 5.1.81.4.Pashana chunnam
 5.1.81.5.Pavazha chunnam
 5.1.81.6.Naga chunnam

References: 4,7,9,13,14,18,19,24,25

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Analyze the term Marunthu with reference to classical Siddha literature. 2. Examine the characteristics and significance of Marunthu Pakkuva Gunam and Marupaaga Gunam. 3. Analyze the concept of Maruthunnum Kaalam and Marunthugalin Seerana Kaalam and their importance. 4. Examine the role of Vaayilidum Vasthukal in enhancing drug action and compatibility with individual constitution (Udaliyal). 5. Analyze the concept of Marunthin Ethirvilaivugal and identify its possible causes and implications. 6. Classify Ul Marunthukal as per classical Siddha sources, including their	4	Lecture	CAN	Knows-how	BL,BS,L &GD,RE C

	categorization based on dosage forms. 7. Interpret the classical verse defining or listing Ul Marunthukal. 8. Analyze the basic principles and traditional rationale involved in the preparation of Ul Marunthukal. 9. Interpret the 24 methods of Marunthu Sei Muraikal with reference to the traditional verse. 10. Analyze the preparations enlisted under Ul Marunthukal, including ingredients, preparation methods, dosage, indications, pathiyam (if applicable), and traditional validation techniques(if applicable). 11. Analyze the role of Pancha Bootha Theory, Taste Theory, and Mukkutra Theory in guiding formulation design and influencing therapeutic outcomes in Siddha medicine.					
CO1,CO2,CO3 ,CO4,CO8	1. Demonstrate the process of Thuringi Manappagu, ensuring each step is executed with precision and adherence to classical methods. 2. Demonstrate the process of Vilvathi Ilakam, executing each step with consistency and in alignment with traditional guidelines. 3. Demonstrate the process of Kaara Sooda Sathu Parpam, performing each stage with precision and following classical Siddha procedures. 4. Demonstrate the method of preparation of Kadikara Linga Chenduram, ensuring each step is followed with accuracy and consistency according to Siddha traditions. 5. Demonstrate the method of preparation of Sinthamani Kuligai, performing each step with precision and strict adherence to classical Siddha methods.	8	Practical Training 5.1	PSY-MEC	Shows-how	FC,C_L,D L
CO1,CO2,CO3 ,CO4,CO8	1. Perform the process of Aya Bringha Raja Paanitham 2. Operate the process of Puli Chunnam 3. Execute the method of preparation of Akkarakaara Mezhugu 4. Perform the process of Sithathi Ennai	10	Experiential-Learning 5.1	PSY-MEC	Does	DIS,PAL
Unit 2 Types of Veli marunthukal and its preparations						

- 5.2.1.Kattu
 - 5.2.1.1.Moola mulai – kattu
 - 5.2.1.2.Notchi kattu
- 5.2.2.Patru
 - 5.2.2.1.Araiappu kattikku patru
 - 5.2.2.2.Asuvaganthi patru
- 5.2.3.Otradam
 - 5.2.3.1.Thimirvatha otradam
 - 5.2.3.2.Puliyiliai otradam
- 5.2.4.Poochu
 - 5.2.4.1.Aviraiyathi Poochu
 - 5.2.4.2.Kuntri Poochu
 - 5.2.4.3.Vembu Poochu
- 5.2.5.Vethu
 - 5.2.5.1.Thippili Vethu
 - 5.2.5.2.Veppampattai Vethu
- 5.2.6.Pottanam
 - 5.2.6.1.Karunjeeraga Pottanam
 - 5.2.6.2.Sanni vagai Pottanam
- 5.2.7.Pugai
 - 5.2.7.1.Vikkal – pugai
 - 5.2.7.2.Ranangal – Pugai
 - 5.2.7.3.Sanni – Pugai
 - 5.2.7.4.Putru pugai
- 5.2.8.Mai
 - 5.2.8.1.Kannil neer vadithal – Mai
 - 5.2.8.2.Puzhu vettuku mai
 - 5.2.8.3.Kadukkai mai
- 5.2.9.Podi Thimirthal
 - 5.2.9.1.Karpoora Podi Thimirthal
- 5.2.10.Kalikkam
 - 5.2.10.1.Kanpadalam – Kalikka mathirai

5.2.10.2.Sanni kalikkam
5.2.11.Nasiyam
5.2.11.1.Ottrai thalai vali – Nasiyam
5.2.11.2.Peenisam – Nasiyam
5.2.11.3.Sura – nasiyam
5.2.11.4.Soothaga sanni vali – nasiyam
5.2.11.5.Neelakasa nasiyam
5.2.12.Nasika paranam
5.2.12.1.Nasika parana mathirai
5.2.12.2.Sundai ver podi
5.2.13.Kalimbu
5.2.13.1.Pun – Kalimbu.
5.2.13.2.Mega virana kalimbu
5.2.14.Seelai
5.2.14.1.Thurusu Seelai
5.2.14.2.Vilampisin Seelai
5.2.15.Neer
5.2.15.1.Manjal Neer
5.2.15.2.Kulirintha Karu Neer
5.2.16.Varthi
5.2.16.1.Amanakku Varthi
5.2.16.2.Athipattai Varthi
5.2.17.Pasai
5.2.17.1.Kukil Pasai
5.2.17.2.Rasa Chendoora Pasai
5.2.17.3.Sirangu Pasai
5.2.18.Kali
5.2.18.1.Karuvel Kali
5.2.19.Podi
5.2.19.1.Palnoi – palpodi
5.2.19.2.Avarai vithu podi
5.2.20.Karam

5.2.20.1.Saveera Karam

5.2.20.2.Manjal karam

References: 13,17,19,22

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Explain the concept of Velimarunthukal. 2. Interpret the verse on Velimarunthukal. 3. Explain in detail about Velimarunthukal and its preparations enlisted.	4	Lecture	CC	Knows- how	DIS,LS,F C
CO1,CO2,CO3 ,CO4,CO8	1. Demonstrate the process of Kiranthikku Kalimbu, executing each step with precision and adhering to traditional guidelines. 2. Demonstrate the process of Thumbai Nei, ensuring each step is performed with consistency and in accordance with classical Siddha preparation methods. 3. Demonstrate the process of Karippan Thylam, ensuring precision in each step and strict adherence to classical Siddha formulations. 4. Demonstrate the process of Pachai Eruvai, ensuring each step is carried out with accuracy and in strict alignment with traditional methods.	8	Practical Training 5.2	PSY- MEC	Shows- how	DL,IBL
CO1,CO2,CO3 ,CO4,CO8	1. Demonstrate the process of Par Pasai 2. Define the process of Asana Varthi 3. Practice the process of Sirangu Kalimbu 4. Demonstrate the method of preparation of Kilinjal Mezhugu 5. Prepare Aayilennai	10	Experiential- Learning 5.2	PSY- GUD	Shows- how	RP,C_L

Unit 3 Traditional instrumentation for in house pharmacy

- 5.3.1.Iyanthiragal (Instruments)
 - 5.3.1.1.Thulayanthiram
 - 5.3.1.2.Thooba yanthiram
 - 5.3.1.3.Mezhugu thaila karuvi
 - 5.3.1.4.Kuzhi thaila karuvi
 - 5.3.1.5.Kuppi puda thaila karuvi
 - 5.3.1.6.Sudar thaila karuvi
 - 5.3.1.7.Valuka yanthiram
 - 5.3.1.8.Oothu yanthiram
 - 5.3.1.9.Theeneer thiravaga valai
 - 5.3.1.10.Madakku valai yanthiram
 - 5.3.1.11.Theeneer valai yanthiram (Another one)
 - 5.3.1.12.Kuraintha alavu thiravagam edukum karuvi
 - 5.3.1.13.Pathanga karuvi
 - 5.3.1.14.Sambirani pathagam,thailam edukum karuvi
- 5.3.2.Karuvigal (Equipment)
 - 5.3.2.1.Karuvigal to be placed beside the stove
 - 5.3.2.2.Matkalavilakanam
 - 5.3.2.3.Chattikalin ilakanam
 - 5.3.2.4.Kunthanai ilakanam
 - 5.3.2.5.Pulaminaki ilakanam
 - 5.3.2.6.Ural, ulakkai types
 - 5.3.2.7.Sillidai ilakanam
 - 5.3.2.8.Ammi, kuzhavi types
 - 5.3.2.9.Viragu types
 - 5.3.2.10.Puriyanai vagai or purimanam
 - 5.3.2.11.Pidiseelai types & patragatri
 - 5.3.2.12.Vadikaruvigalin betham
 - 5.3.2.13.Moozhi ilakam or Agapai
 - 5.3.2.14.Moozhi vigarpam

References: 8,14,22

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Describe about Irunthai, Inthanam, Kamaram and Pulingam 2. Describe about Iyanthirangal listed in the subtopic. 3. Explain about the Karuvikal enlisted. 4. Discuss about the Kalvathin Alavu as per ancient Siddha literature.	4	Lecture	CC	Knows-how	L&PPT ,BL,DIS
CO1,CO2,CO3 ,CO4,CO8	1. Make models of extinct instruments, using traditional and modern materials to replicate the original design and function. 2. Demonstrate the process of Mayana Thylam, adapting traditional methods for precision and therapeutic consistency in the final product. 3. Prepare a model of Urukku Kugai, combining traditional techniques and modern approaches to replicate its original form and function	8	Practical Training 5.3	PSY- ORG	Shows-how	DL,EDU
CO1,CO2,CO3 ,CO4,CO8	1. Design the model of Pancha Chunna Kugai 2. Create the process of Valai Rasam by using Pathanga Karuvi	9	Experiential- Learning 5.3	PSY- ORG	Does	EDU,DIS, IBL

Unit 4 Purification of prepared medicines

- 5.4.1.Amirtha Karanam
- 5.4.2.Formulations pertaining to the purification of prepared medicines
 - 5.4.2.1.Baskara lavan
 - 5.4.2.2.Lasunathi kirutham
 - 5.4.2.3.Bairava mezhugu
 - 5.4.2.4.Pancha sootha mezhugu
 - 5.4.2.5.Bringhamalaga thylam
 - 5.4.2.6.Keezhvainelli thylam

References: 7,9,11,22

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Apply the process of Amirthakaranam and its importance in Siddha medicine. 2. Utilize the process of Nerpudam and its significance in preparing medicines. 3. Implement the purification techniques for the prepared medicines enlisted.	3	Lecture	CAP	Knows-how	BL,L_VC ,BS
CO1,CO2,CO3 ,CO4,CO8	1. Demonstrate the process of Amirtha Karanam, executing each step with precision and adhering to classical Siddha methodologies. 2. Demonstrate the process of Nerpudam, ensuring each step is executed with consistency and adherence to traditional protocols. 3. Demonstrate the preparation of Gowri Padana Mathirai, ensuring precision in each step of the process according to classical guidelines.	6	Practical Training 5.4	PSY-MEC	Shows-how	BL,Mnt,D L
CO1,CO2,CO3 ,CO4,CO8	1. Appraise the significance of Amirtha Karanam in the purification of iron-containing formulations. 2. Appraise the importance of Thaniya Pudam in enhancing therapeutic efficacy by implementing in the following formulations • Komoothira thailam • Baskara lavanam	10	Experiential-Learning 5.4	AFT-REC	Does	DIS,PrBL

Practical Training Activity

Practical Training 5.1 : 1.Thurinji Manappagu
 2.Vilvathi Ilakam
 3. Kaara sooda sathu parpam
 4.Kadikara linga chenduram
 5.Sinthamani Kuligai

Total Activity Hours (8 Hours)

1.Demonstrate the process of Thurinji Manappagu (The Siddha Formulary of India) (1 Hour)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (30 minutes)

Prepare the ingredients:

- Extract the juice from thurinji naratham pazham and strain it to remove any seeds or pulp.
- Measure the juice and take double the quantity of sugar.
- Heat a heavy-bottomed pan and add the sugar.
- Add the thurinji naratham pazham juice to the sugar and stir well.
- Heat the mixture on medium flame, stirring continuously to dissolve the sugar completely.
- Let it boil gently, and check the consistency frequently.
- To check the consistency, take a small drop of syrup and place it between your thumb and index finger
- When you stretch your fingers, if it forms a single thread (single-string consistency), the syrup is ready.
- Alternatively, drop a small amount of syrup in a bowl of water; it should form a soft ball without dissolving.
- Remove the syrup from heat once the correct consistency is achieved.
- Allow it to cool completely before storing it in a sterilized glass jar or bottle.

Activity 3 : Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Vilvathi Ilakam (The Siddha Formulary of India) (1 Hour)

Instruction to teacher - Introduction and Demonstration (10 minutes)

The Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2: Practical session (30 minutes)

- Take vilva ver and crush it lightly to enhance extraction.
- Add it to a pot with sufficient water.
- Boil the mixture until it reduces to half, creating a concentrated decoction.
- Strain the decoction to remove the herbal residue.
- Add milk to the decoction in the desired quantity.
- Add palm jaggery, stir well, and filter to remove any impurities.
- Heat the mixture and boil it on medium flame until it thickens to a syrupy consistency.
- Stir continuously to prevent burning.
- Once the mixture reaches the syrupy stage, reduce the flame.
- Gradually add all the powdered raw drugs (Chooranam).
- Stir well to ensure the powders are evenly mixed.
- Remove the mixture from the heat and allow it to cool slightly.
- Once it has cooled to a lukewarm temperature, add honey and mix thoroughly.
- The final ilakam should have a thick, semi-solid consistency.
- Store in a sterilized glass jar or container. Keep it in a cool, dry place.

Activity 3 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Demonstrate the process of Kaara sooda sathu parpam (Sigichcha Rathana Dheepam

- Vaithiya sinthamani) (2 Hours)

Instruction to teacher - Introduction and Demonstration(10 minutes)

The teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (1Hour 30 minutes)

Ingredient Preparation - Collect all the ingredients in equal proportions.Grind the mixture with lemon juice to form a homogenous paste. Shape the paste into villai and dry them under sunlight

Moosai (Crucible) and Lid Preparation - Create a crucible (moosai) and a lid for sealing it using karchunnambu

Placement and Sealing - Place the dried villai inside the moosai. Seal the moosai using a plaster made of seelaimann

Pudam Process - Perform the pudam process, which involves heating the sealed crucible with 7-8 cow dung cakes. This ensures the controlled application of heat for the proper transformation of the ingredients into parpam. Allow it to cool after heating.

Activity 3 : Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

4. Demonstrate the method of preparation of Kadikara linga chenduram (Sigichcha Rathana Dheepam

- Vaithiya sinthamani) (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (1Hour 30 minutes)

Preparation of Base Ingredients - Take 1 varagan kadikkaram and 1 palam lingam .Grind them together in a kalvam with Siruserupadai charu for 1 hour into a homogeneous paste and made into villai. Dry the prepared villai under sunlight.

Sealing the Agal Setup - Place the dried villai inside an agal. Cover it with another agal of the same size, ensuring the brims are perfectly aligned. Seal the brims tightly plastered with seelai.

Sand Bed Preparation - Spread sand over the ground with a height of approximately 4 finger breadths. Place the sealed agal on the sand and cover it with another layer of sand up to 4- 5 finger breadth height.

Pudam Process - Perform the first pudam (controlled heating process) using three varatties. Allow the setup to cool naturally after the heating process. Turn the agal setup upside down and repeat the pudam process under similar conditions. Perform a total of two pudams for this step.Repeat the entire process three times, ensuring two pudams are performed during each time. Allow sufficient cooling between each pudam and ensure the setup is well-sealed and placed correctly each time.

Final Grinding and Storage - Grind the end product finely to ensure uniformity. Store the final powder in a clean, dry, airtight vessel for future use.

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

5. Demonstrate the method of preparation of Sinthamani Kuligai (Agathiyar pallu 200) (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (1Hours 30 minutes)

Preparation of Ingredients - Ensure the following ingredients are purified using traditional methods: Nabi, Rasam, Kanthagam, Vengaram, Jathilingam. Fry Perungayam until aromatic, then powder it finely. Fry Thippili chooranam until it is evenly roasted and aromatic

Measurement: Take equal quantities of all the above ingredients.

Step-by-step grinding process

- Place Purified Rasam and Purified Kanthagam in a kalvam. Grind them together until the mixture turns black.
- Add Erukkampal little by little to the Rasam-Kanthagam mixture. Continue grinding until the mixture binds together cohesively.
- Place purified Jathilingam and Purified Vengaram in the kalvam. Grind them together thoroughly to form a smooth blend.
- Finally, add fried Perungayam powder and fried Thippili chooranam. Grind all the ingredients together, adding Erukkampal gradually.
- Continue grinding for 3 samam (9 hours) to ensure a fine, uniform mixture.

Rolling into Pills & Storage

- After achieving the desired consistency, roll the mixture into pepper-sized pills.
- Allow the pills to dry completely in a clean, shaded area.
- Store the dried pills in a clean, airtight container to preserve their potency.

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 5.2 : 1.Kiranthikku kalimbu

2.Thumbai nei

3.Karippan thylam

4. Pachai eruvai

Total Activity Hours (8 Hours)

1. Demonstrate the process of Kiranthikku kalimbu(The Siddha Formulary of India) (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (1 Hour 30 minutes)

Grinding the Dry Ingredients - Take all the ingredients in equal proportions. First grind rasam and kandhakam by using kalvam until the mixture turns into a fine black powder. Add other ingredients and Continue grinding.

Incorporating Butter - Gradually add 12 parts of butter to the above grounded mixture. Continue grinding the mixture thoroughly in the kalvam. The mixture will gradually transform into a smooth, uniform paste with a kalimbu consistency.

Consistency Check - The final product should be smooth and free from granules, with a consistent, spreadable texture. The color and texture will depend on the quality of the ingredients and the grinding process.

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Thumbai nei (Marunthu Sei Iyalum Kalaiyum) (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (1 Hour 30 minutes)

- Obtain fresh Thumbai flowers and crush them to extract their juice
- Mix the Thumbai Poo extract with Vadhumai Nei in a proportion of 1:15.
- Heat the mixture gently while stirring to avoid burning.
- Once the boiling is complete and when the moisture content completely lost, filter it using a clean muslin cloth or a fine sieve to separate any solids or residues.
- The prepared formulation can then be stored in a clean, airtight container

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing

instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Demonstrate the process of Karippan thylam (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (1 hour 30 minutes)

Preparation of Juices - Extract the juices (charu) from Karippan, Kattrazhai and Nellikkai

Mixing the Base - Combine Karippan Charu and Gingelly Oil in equal parts. Add Kattrazhai Charu and Nellikkai Charu in the proportion of 1/4 part each to the base mixture.

Adding Ground Raw Drugs - Select the appropriate raw drugs given in the formulation. Grind the raw drugs finely using cow's milk. Add this paste to the oil and juice mixture.

Boiling the Mixture - Heat the entire mixture over a low flame. Stir continuously to avoid sticking or burning. Allow the mixture to boil gently until it reaches thailam consistency.

Straining and Storage - Once the thailam is ready, let it cool slightly. Strain the oil using a clean muslin cloth or fine sieve to remove solid residues. Store the strained oil in a clean, dry, airtight container.

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

4. Demonstrate the process of Pachai eruvai (The Siddha Formulary of India) (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (1 Hour 30 minutes)

- Take the ingredients: Gather all the ingredients mentioned as per text.
- Grind with gingelly oil: Grind the ingredients with gingelly oil
- Add water: Add some water and continue grinding for a little while.
- Discard the water: After grinding, remove the water layer.
- Repeat: Add fresh water and grind again. Repeat this process 10 times.

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 5.3 : 1.Models of extinct instruments

2.Mayana thylam

3.Urukku Kugai

Total Activity Hours (8 Hours)

1. Make models of extinct instruments (2 Hours)

Activity 1 :Research and Documentation (30 minutes)

- Study References: Gather as much information as possible about these instruments from ancient texts, archaeological findings, and historical references. Look for descriptions, dimensions, materials, and usage.
- Visualize: If illustrations or carvings of these instruments exist, use them as a basis for your model. If no visuals exist, rely on descriptions and similar surviving instruments.
- Consult Experts: Reach out to historians, archaeologists, or ethnomusicologists to validate your understanding.

Activity 2 : Materials Selection (30 minutes)

Choose materials that represent the originals as closely as possible, or use modern substitutes:

- Wood: For body structures (e.g., hardwoods like teak, rosewood).
- Strings: Natural fibre strings, metal wires, or modern nylon strings.
- Animal Skin: Substitute with synthetic membranes if the original used hides.
- Metal: Brass, copper, or steel (modern equivalents for resonators or ornaments).
- Natural Fibers/Resin: For connecting parts or tuning mechanisms.

Activity 3 :Building the Models (1 Hour)

- Based on its description as an ancient string or percussion instrument, design its body shape and structure.

- Assemble Parts: Ensure all pieces fit well and reflect the original design.

Final Presentation

- Finish: Polish or paint the models to resemble ancient finishes (use natural dyes or varnishes).
- Label: Include plaques with descriptions, historical significance, and possible usage.
- Demonstrate: If possible, play or mimic the sounds these instruments might have produced.

Display and Educational Use

- Set up a small exhibit to showcase the models.
- Provide accompanying visuals, such as videos, charts, or ancient script translations, to enrich the audience's understanding.
- Use the models for workshops to teach about the cultural heritage of extinct instruments.

2. Demonstrate Mayana thylam (Gunapadam Thathu - Jeevavaguppu) (3 Hours)

Instruction to teacher - Introduction and Demonstration(10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (2 Hours 30 minutes)

Assemble the Mezhugu Thyla Karuvi - Set up the apparatus securely on a stable, heat-resistant surface. Ensure the oil outlet is clean and connected to the collection jar.

Load the Ingredients - Add all the specified ingredients into the karuvi's main chamber. Measure the ingredients accurately to maintain the formulation's efficacy. Apply controlled heat to the karuvi, ensure even heating and prevent burning.

Monitor the Process - Continue heating until the mixture reaches the desired consistency and the oil separates from the solid residues. The oil will flow through the karuvi's outlet into the collection jar. Ensure the oil collects into a clean, sterilized glass or porcelain jar

Precautions - Avoid overheating, as it may degrade the oil's therapeutic properties. Ensure proper ventilation during the process. Handle the heated apparatus and oil with care to avoid burns.

Activity 3 :Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing

instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Prepare a model of Urukku Kugai (Gunapadam Thathu - Jeevavaguppu) (3 Hours)

Instruction to teacher - Introduction and Demonstration(10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (2 Hours 30 minutes)

Step 1: Preparing the mixture - Take 2 parts each of: Kazhuthai Lathi , Umi Karukal, and Silaiyin Sambal, Add 6 parts of Kalimann. Mix the dry ingredients thoroughly in a large trough.

Step 2: Adding Kadukkai Kudineer - Prepare Kadukkai Kudineer by boiling crushed Kadukkai in water until it reduces to a concentrated decoction. Gradually add the decoction to the dry mixture and grind well.

Step 3: Shaping the Kugai and Lid

Step 4: Drying - Place the shaped furnace (kugai) and lid in a shaded, ventilated area to air-dry slowly. Avoid direct sunlight to prevent cracking.

Step 5: Firing - Once dried, fire the furnace and lid in a kiln or traditional pit firing setup if a more durable structure is required. This step solidifies the kugai, making it resistant to repeated use in high-temperature processes.

Activity 3 :Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 5.4 : 1.Amirtha karanam.

2.Thaniya pudam

3.Gowri Padana Maathirai

Total Activity Hours (6 Hours)

1. Amirtha karanam (Anubhoga Vaithiya Navaneetha Thirattu part 1) (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (1 Hours 30 Minutes)

Prepare the Decoction - Take Manjal Kadukkai Thol, Nelli Vatal, and Thanrikkaithol in the prescribed ratio. Boil these ingredients in water on a medium flame until the water reduces to 1/10 parts, forming a concentrated decoction. Strain the decoction to remove solid residues and collect the liquid.

Mix Additional Ingredients - Add the required amount of Aya Parpam to the strained decoction. Add an adequate quantity of cow's ghee and mix well.

Boil the Mixture - Heat the mixture again on a low flame. Stir continuously and boil until all the water evaporates, leaving behind a thick paste-like mixture.

Sun-Dry the Mixture - Place the thickened mixture on a clean surface or tray under direct sunlight. Allow it to dry completely, ensuring no moisture remains.

Grind in Kalvam - Once dried, transfer the mixture to a kalvam. Grind thoroughly to a fine consistency.

Preserve - Store the finely ground Amirtha Karanam in a clean, dry, and airtight container. Label the container with the preparation date and storage instructions.

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Thaniya pudam (Gunapadam Thathu - Jeevavaguppu) (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

The teacher will provide an overview of the topic, objectives, and what students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (1 Hours 30 Minutes)

A. Preparation of the Paddy/ Any grain mentioned in the literature Heap

- Choose an outdoor or well-ventilated area for the process.
- Spread the boiled paddy heap on the fireproof platform to form the base layer of the heap.

B. Placement of the Material:

- Place the material to be purified at the centre of the paddy heap base.
- Cover the material completely with additional layers of paddy heap, forming a dome-like heap.
- Ensure the material is well-insulated within the heap to allow even heating.

C. Cooling and Retrieval:

- After the heap has cooled completely, retrieve the purified material carefully using tongs or gloves.
- Dry the purified material under sunlight or in a clean, dry area.

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Gowri Padana Mathirai (Gunapadam Thathu - Jeevavaguppu) (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

The teacher will provide an overview of the topic, objectives, and what students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (1 Hour 30 Minutes)

Step 1: Collection of Ingredients - Purified Gowri Padanam – 1 Palam, Lingam – 6 Varagan ,Elumichai Pazha Charu – As required and Mulai Pal – As required

Step 2: Grinding Process - Take Purified Gowri Padanam and Lingam in a Kalvam. First, grind with lemon juice for 12 hours continuously. After this, grind the same mixture with Mulai Pal for another 12 hours to obtain a fine paste.

Step 3: Preparation of Pills - Once the grinding is completed, roll the paste into small pills (about the size of Keshavaragu grains, similar to Ragi seeds). Ensure uniform size and proper shape for consistency.

Step 4: Drying Process - Place the prepared pills in a shaded area for drying. Avoid direct sunlight to maintain potency.

Step 5:Pazhagavaithal process - Store the dried pills in a clean container. Keep aside for 1 year (Pazhagavaithal)

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential learning Activity

Experiential-Learning 5.1 : 1.Aya bringha raja paanitham

2.Puli chunnam

3.Akkarakaara mezhugu

4. Sithathi ennai

Total Activity Hours (10 Hours)

1. Demonstrate the process of Aya bringha raja paanitham (Gunapadam Thathu - Jeevavaguppu) (3 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Hands on practice (2Hours 30 minutes)

Preparation of Herbal extract - Prepare Karisalai Charu and Nelli Charu

Processing Aya Podi in Charu & Adding Other Ingredients:

- Combine Aya Podi with Charu: In a clean pan, add Aya Podi to an equal amount of Karisalai Charu and Nelli Charu and exposed to suriya pudam till the charu evaporates completely.
- Stir the mixture thoroughly to ensure the Aya Podi is well processed in the charu.
- Add other ingredients such as Jaggery, honey, and Other Medicinal Herbs
- Stir well to mix the additional ingredients evenly into the mixture. Allow the combined ingredients to cook together until the Paagu consistency is achieved.

Storage of Aya Bringha Raja Paanitham - Pour the finished Aya Bringha Raja Paanitham into airtight containers.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Puli chunnam (Sigichcha Rathana Dheepam - vaithiya nool) (3 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Hands on practice (2 hours 30 minutes)

Step 1: Preparation of the mixture - Collect pazham puli. Add a measured amount of soorathu karpooram . Pour sitramanakku ennai into the mix. Use salty well water to create a consistent paste. Grind the mixture well in a kalvam until a homogeneous blend is achieved.

Step 2: Formation and drying - Shape the mixture into flat cakes (adai). Sun-dry the cakes until they are completely dehydrated.

Step 3: First incineration - Place the dried adai in a new mud pot. Subject the pot to incineration in a controlled environment, ensuring a uniform heat distribution. Collect the incinerated product

Step 4: Regrinding and reformation - To the calcined product, add soorathu karpooram. Use salty well water to grind the product into a paste again. Reform the paste into cakes (villai) and dry them as before.

Step 5: Repeat the process - Subject the dried cakes to another round of incineration. Repeat the process five times to get kadungkaara chunnam

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Demonstrate the method of preparation of Akkarakaara mezhugu (Sigichcha Rathana Dheepam - vaithiya nool) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Hands on practice (1 Hour 30 minutes)

Step 1: Preparation of chooranam - Collect the herbal raw drugs as per the formulation. Pulverize the herbs into a fine powder using a kalvam.

Step 2: Mixing the ingredients - In a kalvam, place the chooranam, Add pooram to the powder. Add honey to the mixture gradually to bind the ingredients.

Step 3: Grinding - Grind the mixture in the kalvam continuously for two samam each day. Repeat this process for 2 to 3 days, ensuring consistent grinding. This grinding helps in integrating the ingredients and developing a smooth, waxy consistency.

Step 4: Checking for the desired consistency - After 2 to 3 days of grinding, the mixture should achieve a mezhugu (waxy) texture. The final product should be pliable, smooth, and homogenous.

Activity 4: Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

4. Demonstrate the process of Sithathi ennai (Balaramaiya V. Siddha Maruthuva Marundhu Seimuraigal) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Hands on practice (1 Hour 30 minutes)

Preparation of Raw Drugs - Ensure all raw drugs are clean, fresh, and free from impurities and purify. Grind the raw drugs in a Kalvam to form a fine paste, karkam

Mixing and Boiling - Combine Sittramanakku Ennai, veliparuthi charu and coconut milk in the boiling vessel, Add the karkam. Place the vessel on a low flame. Stir the mixture continuously to avoid sticking or burning. Boil the mixture until it reaches a mezhugu consistency

Filtration and Storage - Strain the mixture through then add remaining powdered drugs

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 5.2 : 1.Par pasai

- 2.Asana varthi
- 3.Sirangu kalimbu
- 4.Kilinjal mezhugu
- 5.Aayilennai

Total Activity Hours (10 Hours)

1. Demonstrate the process of Par pasai (Marunthu Sei Iyalum Kalaiyum) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Hands on practice (1Hour 30 minutes)

Prepare the Ingredients - Gather all the ingredients in their required proportions. Ensure they are purified and processed according to traditional guidelines.

Grinding - Place the ingredients in a kalvam. Add a small quantity of honey gradually to the ingredients.Grind the mixture thoroughly, ensuring all components are blended evenly.Continue grinding until the mixture achieves a pasai consistency, which means it should be smooth, sticky, and slightly pliable.

Consistency Check - The final paste should be uniform, without lumps or granules. It should hold its shape but still be easy to spread or apply.

Storage - Transfer the prepared Par Pasai into a clean, airtight container. Store in a cool, dry place to maintain its potency.

Activity 4 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Asana varthi (Sigichcha Rathana Dheepam - vaithiya nool) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Hands on Practice (1Hour 30 minutes)

Preparing the Mixture - Take equal proportions of honey and salt dissolved in water in an iron kadai.

Boiling - Heat the mixture on a low flame. Stir continuously to ensure even cooking and prevent burning. Continue boiling until the mixture reaches a waxy consistency. This can be tested by taking a small drop and checking its stickiness and pliability after cooling.

Rolling of Varthi - Once the waxy consistency is achieved, remove the mixture from heat. Allow it to cool slightly until it becomes safe to handle but is still pliable.

Preparation of Wooden Board - Apply a thin layer of castor oil on the wooden board to prevent the mixture from sticking.

Shaping the Varthis - Place the cooled mixture on the oiled wooden board. Roll the mixture into cylindrical shapes, similar to the size of a little finger. Ensure uniform thickness for consistent application. Blunt the tip of each varthi to ensure painless insertion during use.

Storage - Store them in a clean, airtight container to maintain their shape and consistency.

Activity 4 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3.Demonstrate the process of Sirangu kalimbu (Marunthu Sei Iyalum Kalaiyum) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Hands on Practice (1 Hour 30 Minutes)

Take the raw ingredients in the appropriate proportions. Grind them into a fine powder using kalvam.Sift the powder through a fine sieve to ensure uniformity. Set the powder aside. Take the two types of oils in a kadai or a pan. Mix the oils thoroughly and heat them on a low flame. Chop the beeswax into small pieces for quicker melting. Add the chopped beeswax to the heated oil mixture. Continue heating and stirring until all the beeswax completely melts into the oil. Remove the oil-beeswax mixture from the heat and allow it to cool slightly, but not to the point of solidification. Add the prepared fine powder to the warm oil-beeswax mixture. Stir thoroughly to ensure the powder is evenly distributed throughout the mixture. Continue mixing until the consistency is smooth and uniform.

Storage - Pour the final mixture into clean, dry, airtight containers. Allow the kalimbu to cool and solidify completely before sealing the containers.

Activity 4 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

4.Demonstrate the method of preparation of Kilinjal mezhugu (Gunapadam Thathu - Jeevavaguppu) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Hands on Practice (1 Hour 30 Minutes)

Step 1: Frying Sirukilinjal - Heat a charcoal stove until it reaches a medium, steady heat. Fry the sirukilinjal directly in the charcoal heat.

Step 2: Soaking in Pachai Nellikkai Chaaru - Extract fresh amla juice (pachai nellikkai chaaru) by crushing and straining the fruits. Soak the fried sirukilinjal in this juice. Repeat the soaking and drying process 3 to 5 times. With each cycle, the kilinjal "flourishes"

Step 3: Grinding with Sitramanakku Ennai - Place the prepared kilinjal in a kalvam. Add sitramanakku ennai gradually while grinding. Continue grinding until the mixture achieves a mezhugu (waxy) consistency.

Activity 4 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

5. Demonstrate the method of preparation of Aayilennai (Sigichcha Rathana Dheepam - vaithiya nool) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Hands on Practice (1 Hour 30 Minutes)

Step 1: Preparation of decoction - Take the selected herbs and clean them thoroughly.Prepare decoction&Strain the decoction

Step 2: Grinding and mixing - Take pepper and grind it finely using the decoction. Mix the ground pepper back into the prepared decoction.

Step 3: Addition of oils and butter - Add the following to the decoction: Gingelly oil, Neem oil and Butter. Stir the mixture well to ensure proper blending.

Step 4: Boiling the mixture - Heat the mixture over a low flame. Boil until the water content evaporates. Once the desired consistency is achieved, remove the mixture from heat.

Step 5: Filtration - Filter the oil through a cloth or fine sieve to remove impurities or residues.

Step 6: Dhaniya pudam - Place the filtered oil in a mud pot or a suitable container. Cover the pot securely and subject it to Dhaniya pudam. Allow the oil to cool naturally after the process.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 5.3 : 1.Pancha chunna kugai

2.Valai rasam by using Pathanga karuvi

Total Activity Hours (9 Hours)

1. Model of Pancha Chunna Kugai (Gunapadam Thathu - Jeevavaguppu) (5 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Hands-on Practice (4 Hours 30 minutes)

Step 1: Preparation of Villai & Pudam Process (Conversion to Chunnaambu) - Crab shells, Snail shells, Conch shells, Oyster shells, and Eggshells are ground with erukkampaal and made into villais. Villai is then subjected to pudam to get chunnaambu.

Step 2: Preparation of the Paste - Grind the obtained chunnaambu into a fine powder using the mortar and pestle. Gradually add egg white and limewater, erukkampaal"to obtain a paste-like consistency.

Step 3 : Making the Kugai - Shape the paste into Kugai. Allow them to dry in a well-ventilated area. Once dry, demonstrate how these kugai are used as equipment for preparing chunnam medicines.

Activity 4 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Valai rasam by using pathanga karuvi (Gunapadam Thathu - Jeevavaguppu) (4 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Hands-on Practice (3Hours 30 Minutes)

Collection and Preparation of Raw Materials - Measure four parts of Chitramoola Verpattai and one part of Lingam by weight.

Pulverising and Mixing - Pound the Chitramoola Verpattai into course powder. Combine the powdered Chitramoola Verpattai with the measured amount of Lingam until thoroughly blended.

Preparation of Pathanga Karuvi (Sublimation Apparatus) - Use a traditional Pathaga Karuvi made of earthenware for sublimation. Place the mixture in the lower earthen vessel. Close the two approximated brims of the earthen vessel with suitable seelai to ensure airtight closure between the lower and upper vessels.

Sublimation Process - Heat the Pathanga Karuvi gradually over a controlled flame or heat source. Monitor the setup as the Rasam (sublimated material) forms in the upper earthen vessel.

Collection of Linga Rasam - Allow the setup to cool completely before opening. Gently separate the upper vessel and scrape off the Linga Rasam (sublimated product) without contamination.

Storage and Usage - Transfer the collected Linga Rasam into an airtight container to preserve its potency.

Activity 4 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 5.4 : 1. Amirthakaranam to any three iron-containing formulation.

2. Purification of formulations by Thaniya pudam

- Komoothira thailam

- Baskara lavanam

1.Total Activity Hours (10 Hours)

1. Apply the purification technique Amirthakaranam to any iron-containing formulation.(5 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3: Hands-on practice (4Hours 30 Minutes)

Preparation of Herbal Decoction - Collect equal amounts of Manjal Kadukkai Thol,Nelli Vatrall, Thanrikkaithol and measure the required volume of water and prepare the decoction

Incorporation of Ingredients - Add the required amount of iron-based formulation into the prepared herbal decoction. Add an appropriate quantity of cow's ghee to the mixture.

Boiling the Mixture - Heat the mixture over a low flame. Continue boiling until all the water evaporates, leaving a thick mixture. Once dried, transfer the mixture to a kalvam .grind the mixture into a fine powder or paste

Activity 4: Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Purification of formulations by Thaniya pudam (5 Hours)

Komoothira thailam (2 Hours 30 Minutes) (The siddha formulary of India)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3: Hands-on practice (2Hours)

Collection of Ingredients - Measure equal quantities (1 Padi each) of the following ingredients: Komoothiram, Cow's milk,Karisalai Charu, Musumusukkai Charu,Gingelly Oil.

Add all the collected ingredients into a vessel, traditionally known as a Thaila Pathiram

Heating the Mixture - Place the vessel on a stove over a low flame. Heat the mixture while stirring continuously to avoid burning.Continue heating until the karkam thickens and reaches Mezhu Patham.

Filtering the Oil - Once the mixture reaches the desired consistency, remove it from the heat. Filter the oil using a clean cloth or fine sieve to remove solid impurities. Collect

the clear oil in a sterile container.

Storing in a Kuppi -Pour the filtered oil into a Kuppi. Seal the Kuppi tightly to prevent contamination.

Thaniya Pudam Process (Placement in Grain Heap) - Bury the sealed Kuppi in a heap of grains (Thaniya Pudam). Leave the bottle in the grain heap for a specified duration (as mentioned in traditional guidelines).This step helps purify the oil and enhance its medicinal potency.

Activity 4:Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Baskara lavanam (2 Hours 30 Minutes) - Sigichcha Rathana Dheepam vaithiya nool

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Hands-on practice (2 Hours)

Collection of Ingredients - Gather all the raw drugs in the required quantities as per the text

Grinding and Pounding of Ingredients - Take the drugs that require fine grinding and grind them in a Kalvam.Pound the remaining drugs into a fine powder using a kalvam or a pounding device.

Mixing the Ingredients - Combine all the finely ground and fine pounded powders. Mix thoroughly to ensure uniform distribution of all ingredients.

Packing and Sealing - Transfer the mixed Chooranam into an airtight container

Thaniya Pudam Process (Placement in Grain Heap) - Bury the sealed container inside a heap of ragi (finger millet) grains, ensuring it is fully covered. Leave the container in the grain heap for 3 weeks.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Modular Assessment

Assessment method

Instructions - Conduct a structured Modular assessment. Assessment will be for 75 Marks. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep record of the structured pattern used for assessment. Calculate the Modular grade point as per table 6 C.

1. Written Exam (40 Marks)

Hour

6

This will assess students' understanding of the theoretical concepts, preparation methods, and applications of Siddha formulations.

Section A: Short Answer Questions (20 Marks)

Objective: To assess students' ability to explain key concepts concisely.

Format: 4 questions, each carrying 5 marks.

Section B: Descriptive Questions (20 Marks)

Objective: To assess the students' depth of knowledge and their ability to explain, apply, and integrate concepts.

Format: 2 questions, each carrying 10 marks.

2.Making of model (15 Marks)

Define the kind of model students need to create:

- Conceptual Models: To represent theoretical ideas
- Functional Models: To demonstrate practical functionality
- Prototype Models

Instructions:

- Choose one of the model types listed above.
- Build or design your model using available resources.
- Submit your model with a written report explaining the concept, steps, and purpose behind your model. Include any observations or insights into how this traditional method can be effectively implemented or demonstrated.

3.Case-Based Discussion(10 Marks)

Introduction: Start the discussion by briefly introducing the case, its context, and the key questions.

Student Participation:

- Allow students to present their analyses and proposed solutions.
- Encourage a collaborative discussion where students can ask questions, challenge each other's ideas, and build on each other's contributions.
- Ensure every student has the opportunity to speak and contribute.

Time Management:

- Set clear time limits for each segment (e.g., initial analysis, solution proposals, conclusion).
- Monitor time to ensure that all aspects of the case are covered in the discussion.

The facilitator or moderator should also provide feedback, guiding students to deeper insights and offering constructive criticism.

4.Multiple choice questions (10 marks)

Question Types: Use various MCQ formats:

- Single correct answer
- Multiple correct answers
- True/False
- Assertion-Reason

For paper-based tests, use OMR sheets or manual checking.

(OR)

Any practical in converted form can be taken for assessment.(40 marks)

and

Any of the experiential learning can be taken as an assessment.(35 marks)

Module 6 : Unique drug preparations

Module Learning Objectives

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

- Describe the principles and applications of *Muppu* and *Rasavatham*, focusing on their role in traditional medicine and formulations.
- Explain the preparation methods and therapeutic uses of *Kaadi* and *Amuri Uppu*, including their specific applications in healing.
- Examine the concept of *Pachai Vettu* and analyze its relevance in traditional medicinal formulations
- Discuss the extraction methods for *Sarkkarai* (sugar) and its medicinal properties.
- Discuss the techniques for *Maavu Eduththal* (flour extraction), *Theeneer ennai*

Unit 1 Muppu and Rasavatham

- 6.1.1.Types and its importance of Muppu
 - 6.1.1.2.Aadhi uppu
 - 6.1.1.3.Samaadhi uppu
- 6.1.2.Formulations pertaining to Muppu
 - 6.1.2.1.Andakkal chunnam
 - 6.1.2.2.Konganar muppu seyaneer
- 6.1.3.Rasavatham and its importance
- 6.1.4.Formulations pertaining to Rasavatham
 - 6.1.4.1.Thurusu guru
 - 6.1.4.2.Linga guru
 - 6.1.4.3.Seyarkai pon
 - 6.1.4.4.Seyarkai velli
 - 6.1.4.5.Soruba kuligai

References: 8,15

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Demonstrate the concept of Muppu, its types, and its importance in Siddha formulations. 2. Implement the formulations pertaining to Muppu listed in the subtopic. 3. Utilize the concept of Rasavatham in the context of Siddha practices. 4. Execute the formulations pertaining to Rasavatham listed in the subtopic.	3	Lecture	AFT-VAL	Knows-how	IBL,L&P PT
CO1,CO2,CO3 ,CO4,CO8	1. Execute the method of preparing Muppu following the established procedure with accuracy and consistency. 2. Perform the preparation of Thurusu Sembu by adhering to the traditional method with precise execution.	6	Practical Training 6.1	PSY-MEC	Shows-how	D
CO1,CO2,CO3 ,CO7,CO8	1. Appreciate the philosophical and medicinal value of Rasavatham as portrayed in Siddha texts. 2. Value the traditional knowledge and significance of preparing Thurusu Guru.	9	Experiential-Learning 6.1	AFT-VAL	Does	BS,EDU,I BL

Unit 2 Kaadi and Amuriuppu

- 6.2.1.Other names of Kaadi
- 6.2.2.Method of preparation of Kaadi and its significance.
- 6.2.3.Kadi karametral
- 6.2.4.Other types of Kaadi enlisted
 - 6.2.4.1.Seemai thiratchai kaadi
 - 6.2.4.2.Pazha Kaadi
 - 6.2.4.3.Arisi Kaadi
 - 6.2.4.4.Kazhu Kaadi
 - 6.2.4.5.Sarkkarai Kaadi
 - 6.2.4.6.Kadalai Kaadi
 - 6.2.4.7.Echangkaadi
 - 6.2.4.8.Panangkaadi

6.2.4.9.Thenangkaadi
 6.2.5.Formulations listed in the subtopic prepared by using Kaadi
 6.2.5.1.Mandoora paavanai
 6.2.5.2.Thamira parpam
 6.2.5.3.Sindhadhi legiyam
 6.2.5.4.Inji kaadi
 6.2.5.5.Kaadi dravagam
 6.2.5.6.Kaadi neer Pakkuvam
 6.2.6.Definition, Method of preparation of Amuriuppu and its uses

References: 7,16,28,31,38,41

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Define Kaadi and write other names of Kaadi. 2. Explain the method of preparation of Kaadi and its significance. 3. State Kaadi kaarametral. 4. List other types of Kaadi and its preparation. 5. Describe in detail about the formulations prepared by using Kaadi listed in the subtopic. 6. Define Amuriuppu. 7. Explain the method of preparation of Amuriuppu and its uses.	4	Lecture	CC	Knows-how	BS,L&G D,ML
CO1,CO2,CO3 ,CO4,CO8	1. Execute the method of preparing Kaadi by following the established procedure with accuracy and consistency. 2. Operate the process of preparing Palagarai Parpam efficiently, ensuring each step is completed according to the procedure.	8	Practical Training 6.2	PSY- MEC	Shows-how	Mnt,DL
CO1,CO2,CO3 ,CO4,CO8	1. Handle the method of preparation of Amuriuppu 2. Assemble the preparation of Thambira Parpam	10	Experiential- Learning 6.2	PSY- MEC	Does	PrBL,IBL ,DL

Unit 3 Pachai Vettu Marunthukal

- 6.3.1.Pachai vettu marunthugal enlisted
 - 6.3.1.1.Kantha chooranam
 - 6.3.1.2.Vatharatchasa Chooranam
 - 6.3.1.3.Siddharasa chooranam
 - 6.3.1.4.Kushtathukku Neeradimuthu vadagam
 - 6.3.1.5.Rasa vennai
 - 6.3.1.6.Sagala ranangkalukkum thailam
 - 6.3.1.7.Vanga rasa mathirai
 - 6.3.1.8.Kunmathirkku kanthathi mathirai
 - 6.3.1.9.Sanni sura mathirai
 - 6.3.1.10.Sootha Vallathi Urundai
 - 6.3.1.11.Vanga mathirai
 - 6.3.1.12.Sarvasura vairavam
 - 6.3.1.13.Sanjeevi mathirai
 - 6.3.1.14.Balarasa urundai
 - 6.3.1.15.Valairasa mezhugu
 - 6.3.1.16.Rasa karpooa mezhugu
 - 6.3.1.17.Veera Kuzhambu
 - 6.3.1.18.Lagurasa Chendhuras
 - 6.3.1.19.Jeevakini linga chendhuras
 - 6.3.1.20.Neela kanda rasam
 - 6.3.1.21.Linga swarna Chendhuras
 - 6.3.1.22.Pooras Chendhuras
 - 6.3.1.23.Anjukaruppu
 - 6.3.1.24.Veera chunnam
 - 6.3.1.25.Thavakini parpam
 - 6.3.1.26.Eri ranathirkku karutha kulirinha neer
 - 6.3.1.27.Vaiputirirkku vellai kara seelai

6.3.1.28.Korukku punnirkku plasthiri

6.3.1.29.Linga kalimbu

References: 16,19,32,34,35,36,37,38,39,40,42,43

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Define Pachaivettu Marunthukal. 2. Explain in detail the Pachai Vettu Marunthugal enlisted and its significance.	4	Lecture	CC	Knows-how	BS,L&PP T
CO1,CO2,CO3 ,CO4,CO8	1. Prepare Kushtangalukku Neeradimuthu Vadagam by applying standard methods with necessary adjustments. 2. Prepare Kodusuzhi Maathirai using appropriate techniques suited to specific requirements. 3. Perform the preparation of Poora Satrasa Parpam by following essential steps and adjusting based on raw material condition.	8	Practical Training 6.3	PSY-ADT	Shows-how	Mnt,DL
CO1,CO2,CO3 ,CO4,CO8	1. Develop the method of preparation of Kaara Rasa Chendhuram 2. Formulate the method of preparation of Veera Mezhugu 3. Design the process of Sanjeevi Maathirai	10	Experiential-Learning 6.3	PSY-ORG	Knows-how	C_L

Unit 4 Sarkkarai , Maavu, Theeneer ennai and Kuzhi thylam

6.4.1.Traditional extraction methods

6.4.2.Maavu

6.4.2.1.Koovai kizhangu maavu

6.4.3.Sarkkarai

6.4.3.1.Seenthil sarkkarai

6.4.3.2.Iluppai poo sarkkarai

6.4.4.Mooligaigalin samuthaya gunam (Sathu)

6.4.5.Theeneer ennai and Kuzhi thylam

- 6.4.5.1.Ilavanga thailam
- 6.4.5.2.Ilavanga pattai thailam
- 6.4.5.3.Ilavanga pathri thailam
- 6.4.5.4.Kattu karuvapattai thailam
- 6.4.5.5.Kavattampul thailam
- 6.4.5.6.Oma thailam
- 6.4.5.7.Kichili pazha thailam
- 6.4.5.8.Pudina thailam
- 6.4.5.9.Sathakuppai ennai
- 6.4.5.10.Chandana thailam
- 6.4.5.11.Jathikkai thailam
- 6.4.5.12.Shamanthi poo thailam
- 6.4.5.13.Sirattai thylam
- 6.4.5.14.Karunjeeraga kuzhi thylam

References: 8,12,26,27,47

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Discuss the traditional extraction methods like Maavvu and Sarkarai. 2. Explain about the Maavvu and Sarkarai formulations enlisted. 3. Describe Mooligaigalin Samuthaya Gunam (Sathu). 4. Define Theeneer Ney and Kuzhi Thylam. 5. Discuss the Theeneer Ney and Kuzhi Thylam formulations enlisted.	4	Lecture	CC	Knows-how	BS,LS,L_V VC
CO1,CO2,CO3 ,CO4,CO8	1. Imitate the preparation of Kovai Thandu Sarkkarai 2. Follow the process of Serankottai Kuzhithylam 3. Practice the process of Santhana Theeneer Ney (Santhana Thylam)	10	Experiential-Learning 6.4	PSY-GUD	Shows-how	DIS,C_L

CO1,CO2,CO3 ,CO4,CO8	1. Execute the preparation of Koovai Kizhangu Maa, adapting the steps as per material quality and clinical context. 2. Implement the method of preparing Karunjeeraga Kuzhi Thylam with appropriate adjustments based on formulation standards.	8	Practical Training 6.4	PSY-ADT	Shows- how	DIS,DL, Mnt
Practical Training Activity						
Practical Training 6.1 : 1.Preparation of Muppu 2.Thurusu Sembu						
Total Activity Hours - 6 Hours 1. Demonstrate the method of preparation of muppu (Marunthu Sei Iyalum Kalaiyum)- 4 Hours Instruction to teacher - Introduction and Demonstration (10 minutes) Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity. Activity 1: Identification and ordering of raw drugs (10 minutes) The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product. Activity 2 : Practical session (3Hours 30 minutes) Initial Mixing - In the earthen vessel, add 1 part Pooneeru, 1 part Thalikkadha Karchunnam and 1 part Pani Neer or Suthamaana Neer. Leave the mixture undisturbed for some time. After settling, add the remaining 3 parts of Pani Neer or Suthamaana Neer. Use the bamboo stick to mix the contents thoroughly. Boiling the Mixture - Place the earthen vessel on a heat source and boil the mixture. Continue boiling until the mixture rises twice (2 kodhi varum varai). Suriya Pudam Process - Cover the vessel with a bamboo plate and expose it to the sun (Suriya Pudam) for 3 days. During this period, stir the mixture thoroughly each morning. Collecting the Muppu - By the evening of the 4th day, observe the formation of frothy sediment on the top layer. Carefully collect the frothy sediment (Muppu) using a palm leaf or spoon.Store the collected Muppu in a clean porcelain jar for future use. Activity 3: Observation, Discussion and Recommendation (10 minutes) Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned. 2. Preparation of Thurusu Sembu (2 Hours) Instruction to teacher - Introduction and Demonstration (10 minutes) Provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity. Activity 1: Identification and ordering of raw drugs (10 minutes)						

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2: Practical session (1 Hour 30 minutes)

Step 1 - Preparation of the raw material - Take 10 Kalanju of Kandar (Thurusu). Coat it thoroughly with Methi Vennai. Place the coated Thurusu in a Kugai. The opening of the Kugai is sealed tightly using Seelai. Subject the Kugai to high heat until the Thurusu inside melts completely. Once the Kugai is opened after cooling, the Thurusu inside is now transformed into Sembu. Sirukann Nagam is measured 10 Kalanju separately. It is then melted in another crucible. The melted Sirukann Nagam is carefully added to the melted Sembu.

Step 2 - Pudam Process - The molten metal mixture is placed inside a special Pudam setup. It is covered and heated using cow dung cakes as fuel. After the pudam molten mixture turns into gold.

Activity 3: Observation, Discussion and Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 6.2 : 1.Preparation of Kaadi

2.Palagarai parpam

Total Activity Hours (8 Hours)

1. Demonstrate the method of preparation of kaadi (Nam Naatu Vaithiyam) (5 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product..

Activity 2: Practical session (4 Hours 30 minutes)

Initial Setup - Take a clean mud pot and add rice along with porridge (kanji) to it. Add enough water to the mixture so that the rice and porridge are fully submerged. Cover the mouth of the mud pot with a seelai thuni.

First Sooriya Pudam Exposure - Place the covered mud pot in a location with direct sunlight, and leave it there continuously for one month. After one month, open the mud pot carefully. Add a fresh quantity of rice to the fermented mixture.

Second Sooriya Pudam Exposure - Cover the mud pot again with the seelai thuni and place it back under direct sunlight for another month. This second Sooriya Pudam allows further fermentation.

Activity 3 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Palagarai parpam (Balaramaiya V. Siddha Maruthuva Marundhu Seimuraigal) (3Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (2 Hours 30 minutes)

Initial Preparation - Purify palagarai by appropriate method

Soaking Process - Place the Palagarai in an Agal. Completely submerge the shells in Kaadi to ensure uniform soaking. Place a lid over the Agal, Seal the edges of the lid with Seelaimann

Pudam Process - Place the sealed Agal in a pit or on a stable, non-flammable surface. Surround it with 50 dry cow dung cakes. Light the cakes evenly to create consistent heat. Allow the entire setup to burn and cool naturally.

Final Steps - Carefully break open the Seelaimann seal and remove the lid. Collect the processed material (now a fine, whitish powder) from the Agal. Grind the collected material into a fine powder using a Kalvam. Store the finished Palagarai Parpam in an airtight glass container.

Activity 3 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 6.3 : 1.Kushtangalukku Neeradimuthu vadagam

2..Kodasuzhi maathirai

3.Poora satrasa parpam

Total Activity Hours (8 Hours)

1. Demonstrate the method of preparation of Kushtangalukku Neeradimuthu vadagam (Agathiyar 2000) (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product..

Activity 2: Practical session (1 Hour 30 minutes)

Preparation of Neeradimuthu Paste - Take 4 parts of Neeradimuthu. Grind it thoroughly with ghee in a kalvam until it forms a smooth paste. Set the paste aside for later use.

Grinding Rasam and Kandhagam- Take 8 parts of rasam and 1 part of kandhagam.Grind them together in the kalvam. Continue grinding until the mixture turns black,

indicating proper amalgamation and chemical changes.

Incorporating Neeradimuthu Powder - Add the Neeradimuthu powder to the black mixture of rasam and kandhagam. Grind everything together thoroughly in the kalvam until the mixture is smooth and consistent.

Final Blending -Combine the prepared Neeradimuthu paste with the above mixture. Grind the entire preparation together until it achieves a karkam consistency, ensuring even mixing and proper binding.

Storage - Roll the prepared mixture into small vadagam. Dry the vadagam naturally in a cool, shaded area to preserve its potency. Store in a clean, airtight container for future use.

Activity 3 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the method of preparation of Kodasuzhi maathirai (Agathiyar 2000) (3 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2: Practical session (2Hours 30 minutes)

Ingredients - Take equal parts (1 1/4 varagan each) of all the required ingredients. Add 15 varagan of purified Nervalam.

Steps for Preparation:

Purification of Nervalam: Purify Nervalam seeds according to the traditional Siddha method. **Grinding:** Mix all the ingredients in a clean, dry kalvam. Grind them thoroughly to achieve a fine consistency. Extract juice from fresh Murungai leaves. Gradually add this juice to the powdered mixture while grinding to form a smooth, pliable dough-like consistency called karkam.

Pill Formation - Take small amounts of the karkam. Roll them into small pills (maathirai) of uniform size(130mg).

Drying: Place the pills on a clean tray lined with a cotton cloth. Dry them in the shade to avoid exposure to direct sunlight, ensuring complete drying.

Activity 3 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Demonstrate the process of Poora satrasa parpam (Anubhoga Vaithiya Navaneetha Thirattu - part 4) (3Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (2Hours 30 minutes)

Step 1: Preparing Pooram - Take the required amount of Pooram and grind it into a fine powder. Mix the finely powdered Pooram with a sufficient amount of water in a clean container. Allow the mixture to stand undisturbed for some time. Carefully decant the supernatant liquid without disturbing the sediment.

Repeating the Process - Add fresh water to the remaining sediment. Let it settle, then remove the supernatant again. Repeat this process 10 times to thoroughly cleanse the Pooram.

Drying Pooram - Collect the washed Pooram and spread it out in a clean, shallow tray. Expose it to sunlight to dry completely, ensuring all moisture is removed.

Step 2: Mixing with Venkaram - Weigh the dried Pooram. Take half this weight of purified Venkaram. Combine the Pooram and Venkaram in a kalvam. Grind the mixture thoroughly for one hour to ensure even mixing and fine consistency. Store in a clean, dry container away from moisture.

Activity 3 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 6.4 : 1.Koovai kizhangu maa

2.Karunjeeraga Kuzhi thylam

Total Activity Hours (8 Hours)

1. Demonstrate the preparation of koovai kizhangu maa (Gunapadam – Mooligaivaguppu) (4 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2: Practical session (3Hours 30 minutes)

Step 1: Drying and Powdering - First, take Koovai Kizhangu and dry it thoroughly. This can be done by sun-drying or air-drying in a well-ventilated space to remove all moisture. Once the tubers are fully dried, grind them into a fine powder.

Step 2: Mixing with Water - Place the powder in a container and add sufficient water to fully submerge it. Stir well to ensure the powder is evenly dispersed in the water. Let the mixture sit undisturbed, allowing the heavier particles to settle to the bottom and the lighter supernatant fluid to separate on top.

Step 3: Repeating the Process - Carefully decant the clear supernatant fluid without disturbing the sediment at the bottom. Adding Fresh Water: Refill the container with fresh water, stir the mixture again, and allow it to settle. Repeat this soaking, decanting, and adding fresh water two or three times to thoroughly remove impurities from the Koovai Kizhangu powder.

Step 4: Drying the Mavvu - After the final rinse, collect the purified sediment (the mavvu) that has settled at the bottom of the container. Spread the mavvu on a clean surface

and allow it to dry completely. Sun-drying or air-drying can be used until it reaches a fine, dry consistency.

Activity 3 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate Karunjeeraga Kuzhi thylam (Gunapadam – Mooligaivaguppu) (4 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 :Practical session (3Hours 30 minutes)

Setup the Kuzhithyla Karuvi - Assemble the kuzhithyla karuvi securely to prevent any oil loss during the process. Ensure the collection jar or outlet is clean and tightly fitted to collect the oil efficiently.

Load the Raw Material - Place the karunjeerakam (black cumin seeds) into the burning chamber of the apparatus. Avoid overloading to ensure proper incineration and oil extraction.

Begin the Incineration Process - Ignite the heat source and apply controlled heat to the karuvi. The seeds will undergo incineration, releasing oil in the form of vapours. The vapours condense and collect liquid oil through the outlet.

Collect the Oil - Ensure the oil is collected in a clean glass or porcelain jar to preserve its quality and avoid contamination. Monitor the process continuously to prevent overheating or burning, which could alter the oil's properties.

Activity 3 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential learning Activity

Experiential-Learning 6.1 : 1. Document various aspects of Rasavatham from literature

2.Preparation of Thurusu guru

Total Activity Hours - 9 Hours

1. Conduct a review of the literature on rasavatham and ask them to submit (5 Hours)

A.Define the Research Objective - Clearly state what you aim to achieve through the review.

B.Identify Relevant Sources

- Primary Sources: Ancient Siddha texts, Books on Siddha medicine and alchemy.
- Secondary Sources: Research articles in journals like AYU, Journal of Ethnopharmacology, and Indian Journal of Traditional Knowledge (IJTK).
- Online Databases: PubMed, Google Scholar, and Scopus for peer-reviewed research articles.
- Libraries and Archives: Libraries specializing in traditional medicine (e.g., Tamil Nadu Dr. M.G.R. Medical University library).

C. Search and Collect Literature (1 Hour)

- Use keywords like -"Rasavatham in Siddha medicine" ,"Alchemy and mercury in traditional Indian medicine" etc.,

D. Evaluate and Select Sources (1 Hour)

- Prioritize high-quality and relevant literature:
- Historical texts: Insight into traditional Rasavatham principles.
- Experimental studies: Validation of therapeutic effects.
- Reviews and meta-analyses: Broader context and comparisons.

E. Organize the Literature (1 Hour)

- Categorize the collected data under themes:
- Historical background and philosophy.
- Processes like purification, calcination and pudam.
- Medicinal formulations and therapeutic uses.
- Toxicology and safety measures.
- Modern perspectives and challenges.

F. Analyze and Synthesize Information

- Compare and contrast findings from different sources.
- Highlight gaps in the literature, such as areas requiring further research or integration with modern science.
- Discuss how ancient practices align or differ from current pharmacological approaches.

G. Document the Review (2 Hours)

Write the review using the following structure:

Introduction: Overview of Rasavatham, Importance of the topic and Objectives of the review.

Body: Historical insights, Key principles and processes, Therapeutic applications and Modern interpretations and research findings.

Discussion: Implications of findings and Gaps and future research directions.

Conclusion: Summarize key insights and Reiterate the relevance of Rasavatham in modern medicine.

References: Cite all sources using a standardized format

H. Submission: Format the document as per the requirements of the institution or journal. Include diagrams or illustrations if needed (e.g., flowcharts of purification processes). Submit the document through the required platform (e.g., email, journal submission portal).

2.Preparation of Thurusu Guru (4 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Hands on practice (3 Hours 30 minutes)

Step 1: Preparation of First Coating (Kavasam) - Take 1 palam of Thurusu.Take Mulli (Whole Plant) and its Ash. Grind them together to make a paste. Coat this paste over Thurusu (this is called Kavasam). Wrap it with Seelai and dry it.

Step 2: First Pudam (Heating Process) - Subject the coated Thurusu to Lagu Pudam using 2 - 3 Varatties. Collect the resultant material after Pudam.

Step 3: Preparation of Second Coating - Take an equal amount of Veeram and Pooneru equal to the weight of thurusu.Grind the mixture using Mulli Juice to form a paste.Apply this paste as a second coating over the processed Thurusu.Wrap it again with Seelai (Cloth Coating) and dry it.

Step 4: Second Pudam (Final Heating Process) - Subject the sealed material to Pudam using 4 Varatties. Collect the resultant product, known as Thurusu Guru.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 6.2 : 1.Preparation of Amuriuppu

2.Preparation of Thambira parpam

Total Activity Hours (10 Hours)

1.Demonstrate the method of preparation of Amuriuppu (6 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Hands-on practice (5Hours 30 minutes)

Step 1: Preparation of Guru Chunnam

Step 2: Selection and Preparation of the Banana Tree - Select well-grown banana trees that are about to flower, ideally on the 10th lunar day. Cut a small rectangular window at the neck region of the banana tree by carefully removing sheath layers and reaching the core. Place three teaspoons of Guruchunnam (approximately 30 grams) inside the exposed window. Replace the removed sheath layers in their original position and secure them with a natural tie to ensure they stay in place.

Step 2: Harvesting on the Full Moon - On the full moon (five days later), cut the banana tree approximately 30 cm above the ground level. Create a small, cup-like hollow in the stump's cross-section to act as a reservoir.

Step 3: Collection and Purification Process - Pour water into the hollow to dissolve the components infused with the banana sap. Let the water sit undisturbed for one day, allowing sediment to settle at the bottom. Carefully collect the clear supernatant (top layer of liquid) without disturbing the sediment. Repeat this process twice for further purification, discarding the sediment each time and collecting only the clear liquid.

Step 4: Evaporation and Solidification - Combine all the collected supernatant liquids and boil until the water evaporates completely, leaving a solid salt residue. Spread the solidified salt on a plate and expose it to sunlight, ensuring all remaining moisture evaporates, yielding a completely dry, purified salt.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Preparation of Thambira parpam (4 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Hands-on practice (3Hours 30 minutes)

Step 1: Preparation of Thambira Parpam - Take 2 palam of purified Thambiram powder. Soak it in 5 palam Seemai Thiratchai Kadi for 24 hours. Wash it thoroughly with water. Soak the Thambiram powder in 5 palam Elumicham Pazha Charu for 24 hours and wash with water. Repeat the soaking process two more times with fresh Elumicham Pazha Charu. Dry the Thambiram completely.

Step 2: Preparation of Gandhagam - Take purified Gandhagam. Powder it finely and keep it ready for further processing.

Step 3: Layering in the Mann Kugai (Earthen Pot) - Take a Mann Kugai (earthen pot). Spread three Oomathai leaves inside the pot. Place the powdered Gandhagam over the Oomathai leaves. Place an equal amount of Thambiram powder over the Gandhagam. Cover the contents with another layer of Oomathai leaves.

Step 4: Sealing the Pot - Close the Mann Kugai with a proper lid. Seal the lid using Seelai Mann (clay paste). Apply seven layers of Seelai Mann and allow it to dry completely.

Step 5: Heating Process (Moosai Pottanam) - Take a large earthen vessel. Spread 2 padi of sand inside the vessel. Place the sealed Mann Kugai (moosai) in the middle of the sand. Cover the moosai completely with another 2 padi of sand. Close the vessel with another appropriate earthen vessel. Seal the two vessels together using 5 layers of Seelai Mann.

Step 6: Heating and Final Preparation - Heat the setup for one Nazhigai .After heating, allow the setup to cool completely. Open the Mann Kugai carefully and collect the Tambira Parpam.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned

Experiential-Learning 6.3 : 1.Kaara rasa chendhuram

- 2.Veera mezhugu
- 3.Sanjeevi maathirai

Total Activity Hours (10 Hours)

1. Demonstrate the method of preparation of Kaara rasa chendhuran (Anubhoga Vaithiya Navaneetha Thirattu part 5) (4 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Hands-on practice (3Hours 30 minutes)

Step 1: Purification - Purify both ingredients as per traditional Siddha methods to remove impurities and enhance their therapeutic properties.

Step 2: Grinding - Take the purified ingredients in the proportion of 1:1/2. Grind them together in a kalvam. Continue grinding for 4 samam.

Step 3: Storage - Once the grinding process is complete, transfer the Kaara Rasa Chendhuran into a clean, dry glass bottle. Seal the bottle tightly to protect the chendhuran from moisture or contamination.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the method of preparation of Veera mezhugu (Anubhoga Vaithiya Navaneetha Thirattu)(3 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Hands-on practice (2 Hours 30 minutes)

Step 1: Purification - Purify all ingredients according to traditional Siddha methods to remove impurities and enhance their medicinal properties.

Step 2: Grinding - Use a kalvam to grind the ingredients. Take equal proportions of the purified ingredients and place them on the kalvam. Add small amounts of honey to the mixture while grinding. Grind continuously in circular motions to ensure even mixing and incorporation of the honey. Continue grinding and adding honey until the mixture reaches a smooth, waxy consistency

Step 3: Storage - Transfer to a Porcelain Vessel: Scrape the prepared Veera Mezhugu carefully into a clean, dry porcelain container.

Activity 4 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Demonstrate the process of Sanjeevi Maathirai (Anubava siddha vaithiya sinthamani) (3 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Hands-on practice (2Hours 30 minutes)

Step 1: Purification - Purify the ingredients: Purify herbs, minerals, or other components as per traditional Siddha protocols.

Step 2: Grinding - Take all purified ingredients in the specified proportion (1 part each for primary ingredients and 2 parts of purified black pepper). Place the ingredients in a kalvam .Add freshly squeezed lemon juice in small quantities to the mixture. Grind the mixture for 6 hours to achieve a smooth, uniform paste, karkam.The mixture should reach a pliable, pill-rolling consistency.

Step 3: Making Pills - Take small portions of the karkam and roll them into pills the size of a thuvarai seed. Place the pills on a clean tray lined with a cotton cloth. Allow them to dry in the shade to preserve potency and avoid exposure to direct sunlight.

Activity 4 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 6.4 : 1.Kovai thandu sarkkarai

2.Serankottai Kuzhithylam

3.Santhana theeneer ney(santhana thylam)

Total Activity Hours (10 Hours)

1. Demonstrate the preparation of Kovai thandu sarkkarai (2Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (1Hour 30 minutes)

Step 1: Grinding and Soaking - Take the Kovai thandu and grind it thoroughly to break down the fibres. Place the ground Kovai thandu in a container with cold water, ensuring it is fully submerged. Let it soak overnight.

Step 2: Extracting the Pulp - The following day, stir the soaked mixture, then squeeze out the pulp to release the essence of the Kovai thandu into the water. Strain the mixture to separate the liquid from any remaining solid particles.

Step 3: Sun Exposure - Place the strained water in sunlight for two to three hours. This helps clarify the liquid, causing sediment.

Step 4: Repeating the Process - Once the water appears clear, carefully drain it, being cautious not to disturb the sediment at the bottom. Add fresh water to the container, stir

again, and allow it to settle. Repeat this process of draining and adding fresh water a few more times to thoroughly purify and isolate the desired substance.

Step 5: Collection and Drying - After completing the rinsing cycles, carefully collect the residue that has settled at the bottom. This residue is known as Kovai Thandu Sarkkarai. Spread out the collected sarkkarai residue on a clean surface and let it dry completely, either in sunlight or in a well-ventilated area, until it becomes a fine, dry powder

Activity 4 :Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Demonstrate the process of Serankottai Kuzhithylam (4 hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (3Hours 30 minutes)

Prepare the Setup - Assemble the kuzhithyla karuvi securely on a heat-resistant surface. Ensure the apparatus is clean, and the outlet for oil collection is correctly connected to a glass or porcelain jar.

Add the Serankottai - Place the serankottai in the chamber of the karuvi. Avoid overloading to ensure effective heat exposure and proper incineration.

Begin the Incineration Process- Ignite the heat source and apply controlled heat to the karuvi. The intense heat causes the serankottai to release oil in the form of vapours. These vapours condense and collect as liquid oil through the outlet.

Monitor and Collect the Oil - Monitor the process continuously to ensure that the serankottai does not burn excessively, as this could alter the quality of the oil. Allow the oil to flow steadily into the glass or porcelain jar through the outlet.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Demonstrate the process of Santhana theeneer ney(santhana thylam) -Gunapadam – Mooligaivaguppu (4 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 : Practical session (3Hours 30 minutes)

Preparation of Sandalwood Paste - Take finely powdered sandalwood . Mix with sufficient water to create a slurry that can easily be processed through distillation.

Distillation Process

Assemble the distillation setup with a flask for boiling, a condenser for cooling, and a receiver for collecting the distillate. Pour the sandalwood paste slurry into the boiling

flask. Add enough water to submerge the sandalwood completely. Heat the mixture gently using a controlled heat source. Steam will carry the sandalwood oil along with it as it vaporizes. The vapour passes through the condenser, cools down, and collects as a liquid in the receiver. The oil will separate and float on the surface of the collected distillate (Santhana Theeneer). Carefully skim off the floating oil or use a separating funnel for precise separation.

Heating the Collected Oil - Transfer the collected oil to a stainless steel or glass vessel. Heat the oil gently over a low flame or water bath to evaporate any remaining moisture.

Activity 4 : Observation, Discussion & recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Modular Assessment

Assessment method

Hour

Instructions - Conduct a structured Modular assessment. Assessment will be for 75 Marks. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep record of the structured pattern used for assessment. Calculate the Modular grade point as per table 6 C.

6

1. Problem-based Assignment (10 Marks).

Selection of a problem: Choose a problem that aligns with the module's content and objectives. The problem should be open-ended, with multiple possible approaches or solutions.

Problem Understanding: Students should analyse the problem and identify key elements.

Research and Analysis: Gather data and research relevant to the problem.

Solution Design: Brainstorm and develop potential solutions.

Implementation: Implement the most viable solution (if applicable).

Evaluation: Assess the results or reflect on the process.

Deliverables: Students should submit their findings in the required format (e.g., a written report, prototype, or video).

2. Class presentation (15 Marks)

Introduction: Briefly introduce the purpose and rules of the assessment.

Presentation Delivery:

- Allow each student/group to present in the allotted time.
- Observe and take notes for evaluation.

Q&A Session:

- Encourage questions from peers or assessors to test the presenter's understanding.

Evaluate and Grade the presentation using Common criteria include:

- Content Knowledge
- Organization
- Delivery
- Visual Aids
- Time Management

3. Written Exam (40 Marks)

This will assess students' understanding of the theoretical concepts, preparation methods, and applications of Siddha formulations.

Section A: Short Answer Questions (20 Marks)

Objective: To assess students' ability to explain key concepts concisely.

Format: 4 questions, each carrying 5 marks.

Section B: Descriptive Questions (20 Marks)

Objective: To assess the students' depth of knowledge and their ability to explain, apply, and integrate concepts.

Format: 2 questions, each carrying 10 marks.

4.Viva voce (10 Marks)

Format: One-on-one interviews.

Duration: Set a reasonable time per student (e.g., 10–15 minutes).

Question Types:

- Open-ended questions to encourage discussion.
- Application-based questions to assess practical knowledge.
- Hypothetical scenarios for critical thinking.

Evaluate Responses using predefined criteria such as:

- Knowledge of the subject
- Clarity and articulation
- Critical thinking and reasoning
- Confidence and presentation
- Time management

(OR)

Any practical in converted form can be taken for assessment.(30 marks) and Any of the experiential learning can be taken as an assessment.(45 marks)	
--	--

Module 7 : Special concerns in Siddha Pharmaceutics

Module Learning Objectives

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

- Describe the precautionary measures for drug collection, purification, and medicine preparation, ensuring adherence to traditional and scientific standards.
- Determine *Alavu* (dosage), *Anubanam* (adjuvants), and *Pathiyam* (dietary restrictions) for medicines.
- Illustrate dosage calculations with an emphasis on modern metric measures for accuracy.
- Demonstrate the methods of converting *Apakkuva Marunthukal* to *Pakkuva Marunthukal* and *thodam* caused by *apakkuva marunthukal* and its *parikaaram*
- Explore Siddha formulations decode and address associated myths.
- Apply the decoding of Siddha formulations to validate practices and conclude misconceptions.
- Explain the significance of palm leaf manuscriptology and the preservation of ancient manuscripts to safeguard traditional knowledge.

Unit 1 Precautionary measures in Siddha Pharmaceutics

- 7.1.1.Precautionary measures followed in drug collection practices for Schedule E drugs
- 7.1.2.Precautionary measures followed in purification process
 - 7.1.2.1.Kanthaga suthi
 - 7.1.2.2.Linga suthi
 - 7.1.2.3.Naga suthi
 - 7.1.2.4.Rasa suthi
 - 7.1.2.5.Veera suthi
 - 7.1.2.6.Abragha suthi
 - 7.1.2.7.Aya suthi (Charakku suthi muraigal)
- 7.1.3.Precautionary measures followed in preparation process
 - 7.1.3.1.Agasthiyar kuzhambu
 - 7.1.3.2.Sudar thailam formulations
 - 7.1.3.3.Ayaveera chendhuram

7.1.3.4.Dravagam formulations
 7.1.3.5.Virana sanjeevi thailam
 7.1.4.Precautionary measures followed in dispensing methods
 7.1.4.1.Moola kudora thailam
 7.1.4.2.Poora ennai
 7.1.4.3.Chandra kala lepam

References: 23,26

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3,CO4,CO8	1. Judge the precautionary measures followed during drug collection practices for Schedule-E drugs. 2. Critique the precautionary measures for the purification process of the raw drugs enlisted. 3. Justify the precautionary measures during medicine preparation for the formulations listed in the subtopic. 4. Appraise the precautionary measures during drug dispensing for the formulations listed in the subtopic.	3	Lecture	CE	Knows-how	L_VC,BS, PAL
CO1,CO2,CO3,CO4,CO8	1. Perform the precautionary measures to be followed during Erukkam Pal collection. 2. Apply the precautionary measures while collecting Schedule E drugs. 3. Initiate the precautionary steps required during the purification of Nagam.	6	Practical Training 7.1	PSY-SET	Shows-how	DL,PBL,FV
CO1,CO2,CO3,CO4,CO8	1. Apply the precautionary measures followed during drug purification and preparation of the formulations enlisted. • Senkottai Suthi • Agathiyar Kuzhambu	9	Experiential-Learning 7.1	PSY-SET	Does	Mnt,DL,PBL

- Gandhaga Sudar Thylam

Unit 2 Pakkuva and Apakkuva marunthukal

- 7.2.1.Marunthu pagam
- 7.2.2.Maru pagam
- 7.2.3.Method of conversion of Apakkuva marunthukal to pakkuvamarunthukal for the formulations enlisted
- 7.2.3.1.Vanga chunnam
- 7.2.3.2.Aya thanga chendhuram
- 7.2.3.3.Narayana chendhuram
- 7.2.3.4.Ayakantha chandamarutha chendhuram
- 7.2.3.5.Ekku chendhuram
- 7.2.4.Thodam and parikaaram caused by Apakkuva marunthukal enlisted
- 7.2.4.1.Kaantha parpam &Chendhuram
- 7.2.4.2.Sembu parpam
- 7.2.4.3.Naga parpam
- 7.2.4.4.Sathu parpam
- 7.2.4.5.Vanga parpam
- 7.2.4.6.Thanga parpam
- 7.2.4.7.Velli parpam
- 7.2.4.8.Velvanga parpam
- 7.2.4.9.Aya parpam & chenduram

References: 4,24,38

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Differentiate Marunthu Pagam and Maru Pagam. 2. Analyse the method of conversion of Apakkuva Marunthukal to Pakkuva Marunthukal for the formulations enlisted. 3. Examine Thodam and Parikaaram caused by Apakkuva Marunthukal	2	Lecture	CAN	Knows-how	LS,BS,L &GD

	enlisted.					
CO1,CO2,CO3 ,CO4,CO8	1. Reconstruct the final product from an improperly finished Vanga Parpam using standard textual references. 2. Compile the data on Thodam caused by Apakkuva Marunthukal and the corresponding Parikaaram in a structured format.	4	Practical Training 7.2	PSY- ORG	Shows- how	Mnt,LS,D L
CO1,CO2,CO3 ,CO4,CO8	1. Follow the method to convert apakkuva Karpooora silasathu parpam into pakkuva Karpooora silasathu parpam. 2. Imitate the method to convert apakkuva Annabedhi chendhuraam into pakkuva Annabedhi chendhuraam	5	Experiential- Learning 7.2	PSY- GUD	Shows- how	C_L

Unit 3 Alavu, Anubanam and Pathiyam

- 7.3.1.General dosage guidelines
- 7.3.2.Calculation of dosage in standard metric measures
- 7.3.3.Adjuvants and Vehicle and its importance
- 7.3.4.Pathiyam and Maru pathiyam
- 7.3.5.Itcha pathiyam
- 7.3.6.Kadum pathiyam
- 7.3.7.Miga Kadum pathiyam
- 7.3.8.Roga pathiyam
 - 7.3.8.1.Vatha
 - 7.3.8.2.Pitha
 - 7.3.8.3.Kaba
 - 7.3.8.4.Athisaram
 - 7.3.8.5.Moolam
 - 7.3.8.6.Suram
- 7.3.9.Bogar pathiya murai

7.3.10. Marunthunum pothu apathiyam & Pathiya pathartham
 7.3.11. Marunthirkana pathiyam for
 7.3.11.1. Aya chendhura
 7.3.11.2. Kantha chendhura
 7.3.11.3. Tambira parpam
 7.3.12. Rasa Pathiyam
 7.3.13. Parangipattai Pathiyam

References: 22

3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3 ,CO4,CO8	1. Differentiate the general dosage guidelines based on formulation types or patient profiles. 2. Break down the calculation of dosage in standard metric measures. 3. Distinguish adjuvants and vehicles and assess their importance in formulations. 4. Analyze Pathiyam and its types enlisted.	3	Lecture	CAN	Know	BL,CBL
CO1,CO2,CO3 ,CO4,CO8	1. Formulate accurate adult and pediatric doses for five higher-order formulations based on pharmacological standards. 2. Develop a structured report of Nanju Kurikunangal and Nanju Murivu for ten higher-order medicines with overdose or misuse history. 3. Construct a comprehensive ADR report from hospital data, identifying key formulations and analyzing the causes.	6	Practical Training 7.3	PSY-ORG	Shows-how	CBL,IBL, D-BED
CO1,CO2,CO3 ,CO4,CO8	1. Consistently demonstrates the value of integrating Pathiyam recommended for twenty different types of higher-order formulations, reflecting a deep commitment to traditional therapeutic practices in Siddha medicine. 2. Exhibits dedication to accuracy and standardization by consistently	6	Experiential-Learning 7.3	AFT-CHR	Shows-how	CBL,DA

	documenting the dose of ingredients in modern metric measures for twenty herbomineral formulations, ensuring safe and responsible practice 3. Values the principle of individualized treatment by consistently recording data of five formulations with specific adjuvants for particular diseases, reinforcing patient-centered Siddha practice.					
Unit 4 Decoding, Palm manuscript, and Myths 7.4.1.Decoding Classic Texts and its importance 7.4.2.Common myths surrounding Siddha practices (e.g, alchemy, immortality, etc.). 7.4.3.Palm Manuscript 7.4.3.1.Introduction of Suvadi Iyal 7.4.3.2.Origin of letters (Ezuthukkal) ◦ Vattu Ezuthukkal ◦ Kirantha Ezuthukkal 7.4.3.3. Types of Suvadi 7.4.3.4.Moola padal, padal verupadugal 7.4.4.Yapilakanam 7.4.4.1.Pothu ilakanam 7.4.4.2.Venba ilakanam 7.4.4.3.Viruthappa ilakanam 7.4.5.Cataloging of Suvadi 7.4.6.Source of Suvadi 7.4.7.Maruthuva suvadigalum pathippugalum						
References: 48,49,50,51,52						
3A	3B	3C	3D	3E	3F	3G
CO1,CO2,CO3	1. Analyze the philosophical, metaphysical, and medical significance of Siddha	2	Lecture	CAN	Knows-	BS,DIS,I

,CO4,CO8	literature 2. Examine the challenges posed by the poetic, symbolic, and cryptic nature of ancient verse 3. Analyze the decoding of classic texts and its importance. 4. Investigate the common myths surrounding Siddha practices (e.g., alchemy, immortality, etc.). 5. Analyze the introduction of Suvadi Iyal, Ezhuthukkal, and its types. 6. Examine the types of Suvadi, Moola Paadal, Paadal Verupadukal, Yappilakkanam, and the symbols in Suvadi. 7. Examine the source of Suvadi, cataloging of Suvadi, and Maruthuva Suvadigalum Pathippugalum.				how	BL,C_L
CO1,CO2,CO3,CO4,CO8	1. Interpret the symbols used in Suvadi with clarity and consistency. 2. Perform Suvadi Vaasithal with fluency and attention to traditional format. 3. Apply the standard methods of decoding Siddha verses accurately and efficiently	4	Practical Training 7.4	PSY-MEC	Shows-how	EDU,DL,FC
CO1,CO2,CO3,CO4,CO8	1. Appreciate the role of scientific myth-breaking in Siddha medicine. 2. Value the process of digitalizing Suvadi, including the techniques involved in its digitalization and preservation.	6	Experiential-Learning 7.4	AFT-VAL	Shows-how	FV,C_L,EDU

Practical Training Activity

Practical Training 7.1 : 1. The precautionary measures to be followed during Erukkam pal collection
 2.The precautionary measures to be followed during Schedule E drugs
 3.The precautionary measures to be followed during the purification of Nagam

Total Activity Hours - 6 Hours

1.The precautionary measures to be followed during Erukkam pal collection (1 Hour)

Instruction to teacher - Introduction and Demonstration (10 minutes)

Teacher will Provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task

Activity 1:The precautionary measures to be followed (40 Minutes)

Wear Goggles and Gloves. Wear long-sleeved shirts and pants to protect exposed skin. Wear closed-toe shoes to prevent latex from dripping onto your feet.

Timing and Environment - Collect During Early Morning. Avoid collection in windy weather to prevent accidental splashing.

Tools and Handling - Use clean, sharp tools (like a small knife) to make incisions in the plant. Avoid excessive damage to the plant to ensure sustainable harvesting. Collect latex in a non-reactive container, such as glass or ceramic, to preserve its properties.

Avoid Inhalation or Ingestion - Erukkam pal has toxic properties. Avoid inhaling fumes if the latex is exposed to heat or comes into contact with fire. Wash hands thoroughly after collection, even if gloves were worn.

Emergency Measures - Immediately rinse your eyes with clean water for several minutes. Seek medical attention if irritation persists. Wash the area with soap and water. Apply soothing agents like aloe vera if irritation occurs.

Storage and Transport - Store the latex in a well-sealed, labelled container, away from children, pets, or food.

Activity 2 :Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2.The precautionary measures to be followed during Schedule E drugs (4 Hours)

Instruction to teacher - Introduction and Demonstration(10 minutes)

Teacher will Provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Ask the students to collect the list of Schedule E drugs. (1 Hour)

Activity 2: List out the general precautionary measures and collection of drugs (2 hours and 35 minutes)

1. Identification of Source
2. Timing of Collection
3. Tools and Equipment
4. Precautions During Collection
5. Transportation
6. Storage at Collection Point

Include any particular measure to be followed during the collection of any particular drug. Based on these instructions, ask the students to collect any five schedule E

drugs and submit them.

Activity 3: Observation, Discussion & Recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. The precautionary measures to be followed during the purification of Nagam (1 Hour)

Instruction to teacher - Introduction and Demonstration(10 minutes)

Teacher will Provide an overview of the topic, objectives, and what the students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1:The precautionary measures to be followed (40 minutes)

Ask the students to split into three batches and carry out the purification of Nagam with the following precautionary measures

Personal Protective Equipment (PPE) - Wear Safety Goggles, Use Heat-Resistant Gloves, Wear a Mask, Long-Sleeved Clothing and an Apron

Ensure Proper Ventilation - Perform the process in a well-ventilated area or under an exhaust hood to minimize exposure to toxic fumes. Avoid enclosed spaces to prevent the accumulation of lead vapours.

Handle Nagam with Care

- Ensure that Nagam is properly cleaned and free of debris before melting to avoid an unexpected reaction
- Use heat-resistant tongs or ladles to handle molten Nagam securely.
- Gradually pour the melted Nagam into the oil to prevent splashing or sudden reactions.
- Stand back while pouring to avoid contact with splashes of hot oil or molten lead.
- Ensure that the oil and utensils are completely dry, as even a tiny amount of water can cause violent splattering when mixed with hot materials
- Use Heat-Controlled Equipment to regulate Temperature. Overheating lead can increase vapour release and the risk of spillage. Maintain an appropriate temperature for safe handling.
- Use a stable and reliable heating setup to prevent accidental tipping or overheating.
- Also, Follow the measures given in traditional texts

Post-Process Safety - Dispose of any waste material, including lead residues and oil, according to safety guidelines to avoid environmental contamination. Clean all tools and surfaces thoroughly to remove traces of lead. Wash hands, face, and exposed skin thoroughly after the procedure.

Emergency Preparedness

- In Case of Spills: Have materials like sand or fire blankets ready to smother accidental fires caused by spilt oil.

- First Aid: If molten lead or hot oil contacts the skin, cool the area immediately with running water and seek medical attention.

Activity 2: Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 7.2 : 1.Convert apakkuva Vanga parpam into a pakkuva Vanga parpam
2.Thodam caused by apakkuva marunthukal and parikaaram done and submit the data

Total Activity Hours - 4 Hours

1. Demonstrate the method to convert Vanga parpam not finished properly into a finished product (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

The teacher will provide an overview of the topic, objectives, and what students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 2 : Practical session (1 hours 30 minutes)

Initial Examination - Check if the Vanga parpam is properly processed. Proper pakkuva parpam should be fine, odorless, soft, and have a smooth texture. If it is coarse or improperly processed, proceed with refinement.

Grinding with Kattrazhai Chaaru - Extract fresh juice from aloe vera leaves by slicing the leaves open and collecting the gel and mixing with thiribala chooranam or padikaaram.Mix the Vanga parpam with kattrazhai chaaru in a grinding Kalvam.Grind thoroughly until the mixture achieves a smooth paste-like consistency.

Incineration (Pudam) - Transfer the ground mixture to a suitable earthen vessel or crucible. Seal the vessel tightly with a seelaimann plastering. Subject it to pudam using cow dung cakes. Allow the vessel to cool naturally after incineration.

Testing and Storage: After cooling, open the vessel and examine the parpam.The properly processed pakkuva Vanga parpam will have a soft, smooth, and fine texture. Store the pakkuva Vanga parpam in a dry, airtight container.

Activity 3 :Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2.Thodam caused by apakkuva marunthukal and parikaaram done and submit the data (2 Hours)

Objective:

- To study the thodam caused by apakkuva marunthukal.

- To understand the parikaaram (remedies) for these side effects.
- To gather data by consulting Siddha practitioners and field visits to healthcare facilities where Siddha treatments are used.

Activity 1 : Practical session: (1 Hour 50 minutes)

Step: 1 Grouping the Students:

Group 1: Focus on Herbal Siddha Medicines. Research common herbal Siddha medicines and identify the thodam caused by apakkuva marunthukal. Find parikaaram (remedies) that practitioners suggest for these side effects.

Group 2: Focus on Mineral-based Siddha Medicines. Research mineral-based Siddha treatments and identify the thodam caused by apakkuva marunthukal. Find parikaaram (remedies) to treat the side effects associated with these medicines.

Step: 2 Documenting Data - Organize all the findings into tables or charts.

Step 3: Organize and Submit Data

Step 4: Presentation

Step 5: Class Discussion - After the presentations, hold a class discussion to reflect on: The commonalities and differences between herbal and mineral-based Siddha medicines. How incorrect dosages or incompatibility can lead to significant health issues in Siddha treatments. The role of Siddha practitioners in diagnosing and prescribing remedies for such issues.

Data Submission:

Both groups will submit their findings in a well-organized report or digital document after their field visits and research.

This report will include: Incorrect medicines (apakkuva marunthukal), Side effects (thodam) and Remedies (parikaaram) recommended by experts.

Activity 2 : Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 7.3 : 1. Adult and paediatric dose for any five higher order formulation

2. Document for the nanju kurikunangal and nanju murivu for any ten higher order medicines when overdosage given or improper usage.

3. Summarize the ADR report from the hospital and list out the formulations commonly found in ADR and analyse the underlying cause

Total Activity Hours (6 Hours)

1. Adult and paediatric dose for any five higher order formulations (1 Hour)

Instruction to teacher - Introduction and Demonstration (10 minutes)

The teacher will provide an overview of the topic, objectives, and what students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1 : Practical session: (40 minutes)

- Identify the traditional dose of the formulation as described in classical Siddha texts
- Convert traditional measures into modern metric units (mg or gm)
- For formulations without classical references, use pharmacological research or comparable preparations as a guide.

Pediatric Dose Adjustment Methods - Pediatric doses are calculated using age, weight, or body surface area.

Adjust Dosage Based on the Formulation's Potency

Consider Adjuvants (Anubanam) - The choice of an adjuvant (e.g., honey, ghee, or milk) can affect the dose.

Some formulations may require adjustment based on the child's tolerance to the adjuvant.

Activity 2 :Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Document for the nanju kurikunangal and nanju murivu for any ten higher order medicines when overdosage is given (2 Hours)

Instruction to teacher - Introduction and Demonstration (10 minutes)

The teacher will provide an overview of the topic, objectives, and what students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Practical session (1 Hour 40 minutes)

Add a Cover Page which Include: Title, Your name or the author's name(s) ,Affiliation (e.g., Siddha practitioner, institution, or clinic name), Date of preparation

Prepare an Introduction Section: A brief overview of Siddha medicine. The significance of higher-order medicines in chronic and complex diseases and the risks associated with overdosage or improper usage.

Structure the Main Content

- Organize your document into clear sections with subheadings:

a) Types of Siddha Higher-Order Medicines - Briefly describe medicines like Parpam, Chenduram, Mezugu, Rasa preparations, etc...Highlight why these are prone to toxicity if misused.

b) Nanju Kurikunangal - Create a table or bullet points listing symptoms for each medicine type. Include detailed descriptions of how these symptoms manifest.

c) Nanju Murivu - Divide this section into two parts:

- Traditional Siddha Remedies - Use a table to pair symptoms with corresponding Siddha remedies.
- Modern Emergency Care - Explain scenarios where modern interventions like IV fluids or chelation therapy are necessary.

d) Preventive Measures - Provide clear instructions on dosage, purification methods, and patient education.

Include guidelines for follow-ups and monitoring.

Summarize:

- The importance of safe usage of Siddha medicines.
- The need for early detection and collaborative approaches between Siddha and modern medicine.

Activity 2 :Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Summarize the ADR report from the hospital and list out the formulations commonly found in ADR and analyse the underlying cause (3 Hours)

Instruction to teacher - Introduction and Demonstration (15 minutes)

The teacher will provide an overview of the topic, objectives, and what students will be doing. This helps set expectations and prepares the group. Demonstrate the key steps or explain the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 1: Practical session: (2 Hours 30 minutes)

- Categorize the Formulations like Parpam, Chendhuran etc.,
- Common Adverse Reactions (Grouped by Organ/System)

Analysis of the Underlying Causes

The reported ADRs were analyzed to determine their root causes, revealing the following patterns:

- a) Incorrect Dosage
- b) Lack of Proper Purification (Suddhi)
- c) Individual Factors

- Thegi (Constitution):

- Co-morbid Conditions:
- Age and Immunity:
- Concurrent use of modern pharmaceuticals and Siddha formulations led to interactions, worsening ADRs.

e) Storage and Quality Issues

Conclusion - Finally, give a proper conclusion based on the data collected

Activity 2: Observation, Discussion & Recommendation (15 minutes)

Wrap up the session by discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Practical Training 7.4 : 1. Symbols in Suvadi

2. Palm manuscript reading(Suvadi Vaasithal)

3.Methods of Decoding Siddha Verses

Total Activity Hours (4 Hours)

1. Demonstrate the Symbols in Suvadi (1 Hour)

A. Introduction to Suvadi and Symbol Context (10 minutes)

- Background Study: Students first learn the historical and cultural significance of Suvadi manuscripts, the scripts used (like Tamil and Grantha), and their purposes (e.g., medicinal, astrological, spiritual, or literary).
- Material Familiarization: Students handle palm leaves or replicas, examining their texture, preparation, and preservation techniques.

Activity 1 :Practical session (40 minutes)

Script and Symbol Training

- Learning the Script: For manuscripts in Grantha script, students practice its alphabets, especially for Tamil-Sanskrit blended content.

Symbol Familiarization:

- Teachers introduce recurring symbols like geometric patterns, astrological diagrams, yantras, and decorative motifs.

Engraving Practice

- Students practice using a stylus (ezhuthani) to engrave on practice materials like banana leaves, wax boards, or pre-smoothed palm leaves.
- Guidance on applying consistent pressure ensures clarity without damaging the leaf.

Highlighting Engravings

- Application of Lampblack: Students learn the process of filling the engraved lines with lampblack or charcoal mixed with oil. Proper cleaning techniques ensure the clarity of the symbols without smudging.

Activity 2: Discussion & Recommendation (10 minutes)

Wrap up the session by discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Palm manuscript reading(Suvadi Vaasithal) (2 Hours)

Activity 1: Learn the Basics of Ancient Tamil (20 minutes)

Language Proficiency: Study Classical Tamil (Senthamil) to understand the poetic structures and grammatical rules used in manuscripts. Familiarize yourself with Vattezhuthu and Grantha scripts, often used in palm-leaf manuscripts.

Recommended Resources: Texts like Tholkappiyam (ancient Tamil grammar). Linguistic workshops or online courses on classical Tamil.

Activity 2 : Practical session: (1 Hour 40 minutes)

Study Siddha Texts and Traditional Knowledge

- Gain a deep understanding of the content within palm manuscripts, such as:
- Siddha Medicine: Formulas (Vaidhya Saastram), alchemy (Rasavatham), and herbal knowledge.
- Astrology and Numerology: Predictions and calculations.
- Mantra and Tantra Texts: Spiritual and ritual practices.

Training in Symbol Decoding

- Many manuscripts use cryptic symbols or abbreviations:
- Learn the contextual meanings of codes specific to Siddha practices.
- Work with mentors to decode complex verses

Hands-on Practice with Manuscripts

- Collaborate with archives, temples, or traditional practitioners where authentic manuscripts are preserved.

Learn Interpretation Techniques

- Poetic Context: Decode metaphors and symbolic expressions often embedded in Siddha texts.
- Herbal and Medical Knowledge: Understand the listed ingredients and procedures.
- Astrological Context: Study how celestial events are mapped in these manuscripts.
- Use Modern Tools to Supplement Training and Training Institutes for Palm Manuscript Reading

3. Demonstrate the methods of Decoding Siddha Verses (1 Hour)

1. Literal Translation - The first step is to translate the verse literally. Siddha verses often have layers of meaning, and the first step is to understand the surface-level message.
2. Contextual Understanding - Next, one needs to understand the context in which the verse was written. Siddha verses were composed in a specific cultural, spiritual, and historical context. Many of these verses are metaphysical, and understanding the worldviews of the Siddhas helps us decode them.
- 3.Symbolism and Deeper Meaning - Siddha verses often use symbolism, so now reflect on the deeper, hidden meanings of the words
- 4.Meditation and Contemplation - After analyze the verse's literal, contextual, and symbolic meanings, move into a meditative state to deepen your understanding
- 5.Practical Application (Self-Reflection and Integration) - The next stage is applying the teachings to your life. Siddha teachings are meant to be not just understood intellectually, but also experienced through practice.
- 6.Discuss with a Mentor or Community - Discuss the verse and its interpretation with a mentor or a spiritual community. Siddha wisdom often becomes clearer in group discussions, where different perspectives can offer valuable insights.
- 7.Review and Revisit - Finally, remember that Siddha verses often have multiple layers of meaning, and your understanding may evolve over time. Revisit the verse periodically, especially after spiritual practices, and see if new insights emerge.

Experiential learning Activity

Experiential-Learning 7.1 : Precautionary method in the purification and preparation of formulations

- Senkottai suthi
- Agasthiyar kuzhambu
- Gandhaga sudar thylam

Total Activity Hours - 9 Hours

1. Precautionary method in the preparation of formulations like Senkottai suthi (2 Hours)

Activity: 1 Group discussion (20 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2 :Precautionary method in the preparation of Senkottai suthi (1 Hour 15 minutes)

Ask the students to split into two batches and carry out Senkottai suthi with the following precautionary measures

Personal Protective Measures - Wear Gloves and Goggles,Mask and Protective Clothing and Wear a long-sleeved lab coat or apron to protect your skin.

Preparation of Neutralizing Agents - Buttermilk is traditionally used to reduce the toxicity of Senkottai during the purification process. Tamarind leaf decoction is often used as an additional agent to neutralize the toxicity make the decoction fresh and keep it ready before starting the process.

Handle Materials with Care - Avoid Direct Contact. Use an instrument like paakuvetti to cut the nose

Emergency Preparedness

- First Aid for Skin Contact :If Senkottai or its exudates come into contact with the skin, wash the area immediately with puli ilai kashayam and give puli ilai ottradam

Disposal and Post-Preparation Care - Properly dispose of waste materials, including residues from Senkottai purification, according to safety guidelines. Wash tools and surfaces thoroughly after use to prevent contamination.

Activity 3 :Observation, Discussion & Recommendation (25 minutes)

Wrap up the session by observing the safety of the students & quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2. Precautionary method in the preparation of formulations like Agasthiyar kuzhambu (4 Hours)

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (30 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Precautionary method in the preparation of Agasthiyar kuzhambu (3 Hours)

- Ask the students to split into two batches and carry out the preparation of Agasthiyar kuzhambu with the following precautionary measures.
- Before starting the preparation, apply coconut oil generously over the body, especially on the hands, arms, neck, and face.
- Buttermilk and rice eating is traditionally used procedure to reduce the toxicity during the grinding process.
- Ensure sufficient quantity is prepared in advance.
- Perform the preparation in a well-ventilated area

Storage

- Store the prepared Agasthiyar Kuzhambu in sealed, airtight containers to preserve its potency and prevent contamination.
- Ensure that it is stored away from moisture and direct sunlight

Activity 4 :Observation, Discussion & Recommendation (15 minutes)

Wrap up the session by observing the safety of the students & quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

3. Precautionary measures followed during the preparation of Gandhaga sudar thylam (3 Hours)

Activity: 1 Group discussion (20 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (20 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Precautionary method in the preparation of Gandhaga sudar thylam (2Hours)

- Ask the students to split into two batches and carry out the preparation of Gandhaga sudar thylam with the following precautionary measures

- Avoid Mixing Reactive Substances
- Do not grind Vedyuppu and Manosilai together, as this can result in ignition or explosion. Always handle these substances separately until their combined use is explicitly required in the formulation.
- Place a fine mesh over the mouth of the oil collection vessel to prevent burnt Charakku Kizhi from falling into the oil.
- Keep proper distance between Sudar thyla karuvi and collecting vessel to avoid unnecessary spilling
- Minimize wastage and contamination of the final product.

Activity 4 :Observation, Discussion & Recommendation (20 minutes)

Wrap up the session by observing the safety of the students & quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 7.2 : 1.Method to convert apakkuva Karpooora silasathu parpam into pakkuva Karpooora silasathu parpam
2.Method to convert apakkuva Annabedhi chendhuram into pakkuva Annabedhi chendhuram

Total Activity Hours - 5 Hours

1.Demonstrate the method to convert Karpooora silasathu parpam, which was not finished properly, into the finished product (Marunthu sei iyalum kalaiyum) (2 Hours)

Activity: 1 Group discussion (10 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity

Activity 2: Identification and ordering of raw drugs (10 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Hands on practice:(1hour 30 minutes)

Reassessment of the Product

- Check for signs that indicate the process was incomplete -The texture of the Parpam is not fine or smooth.The product lacks the expected white, silvery colour. Residual impurities or unprocessed material are present.

Grinding with Chunna Thelineer

- Preparation of Chunna Thelineer -Prepare Chunna Thelineer by mixing Chunnam in water. Allow the mixture to settle and decant the clear liquid for use.
- Grinding Process -Take the unfinished Parpam and grind it thoroughly with Chunna Thelineer. Continue grinding until the mixture achieves a fine, homogeneous texture.

Making a Single Villai - After grinding, shape the material into a single Villai and dry it

Pudam Process - Place the Villai between two cow dung cakes. Arrange the cow dung cakes carefully to cover the Villai completely. Ignite the cakes and allow them to burn completely. Retrieve the processed Villai and check the final product.

End product examination The Parpam should be fine, light, and smooth in texture. Exhibit the expected silvery-white appearance and should justify for the traditional validation technique

Activity 4 :Observation, Discussion & Recommendation (10 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

2.Demonstrate the method to convert Annabedhi chendhuram, which was not finished properly, into the finished product (Sikitcha ratna deepam ennum vaithiya nool)(3 Hours)

Activity: 1 Group discussion (15 minutes)

Students discuss the key steps and the procedures involved. This could involve showing how to perform the task or explaining the theory behind the activity.

Activity 2: Identification and ordering of raw drugs (15 minutes)

The identification of raw drugs involves verifying their authenticity, while the ordering of ingredients for an effective quality final product.

Activity 3 :Hands on practice:(2hours 15 minutes)

Desired Outcome - The finished product must have the colour of Madhulam Poo Niram.The failure to attain this colour indicates that the formulation has not undergone a complete transformation.

Procedure if the Color Is Not Achieved - Take the incompletely prepared Chendhuram. Grind it thoroughly with Kumari Seyaneer. Making into Villai and subject to Pudam Process.

Check the final product - It should exhibit the colour of Madhulam Poo Niram. The texture should be fine and free from unprocessed particles

Activity 4 :Observation, Discussion & Recommendation (15 minutes)

Wrap up the session by observing the quality and quantity of the end product, discussing the outcomes, addressing any challenges/difficulties and providing instructions to the students for further improvisation. This time can be used for questions or reflections on what was learned.

Experiential-Learning 7.3 : 1. Pathiyam recommended for any twenty different type of higher order formulations

2. Document for the dose of ingredients in modern metric measures for any twenty herbomineral formulations.

3.Data of any five formulations with a specific adjuvant for particular disease given to the patients

Total Activity Hours (6 Hours)

1. Pathiyam is recommended for any of twenty different types of higher-order formulations (2 Hours)

- Understand the nature of the formulation (Parpam, Chenduram, Mezhugu, etc.) and its properties

- Define the patient's dietary requirements based on the formulation's action.
- Prepare a customised Pathiyam diet with easily digestible foods and ingredients that enhance the formulation's effect.
- Follow the text reference for pathiyam if applicable
- Ensure strict avoidance of contraindicated foods.

2. Document the dose of ingredients in modern metric measures for any twenty herbomineral formulations. (2 Hours)

1. Select the Herbomineral Formulations - Identify the twenty herbomineral formulations in which the dose of ingredients mentioned in traditional method.

2. List the Ingredients for Each Formulation

3. Research the Appropriate Dosage for Each Ingredient

- Look up authoritative sources such as pharmacopeias, clinical studies, and herbal medicine references to determine the standard dosage for each ingredient in modern metric units.
- Dosages should be expressed in grams (g), milligrams (mg), milliliters (ml), or micrograms (mcg), depending on the ingredient.

4. Convert Traditional Dosages to Metric Units

- If the original dosages are in traditional units, convert them to appropriate metric measures using standard conversion factors.
- Ensure that all ingredient doses are consistently represented in metric units for clarity.

5. Verify the Interactions and Toxicity Limits

- Cross-check the dosages for potential interactions or toxicity issues when combining certain herbs or minerals.
- Identify and note any ingredients that have a narrow therapeutic index or require special consideration.

6. Document the Procedure in a Table Format

Create a structured table with columns for:

- Formulation Name

- Ingredient Name
- Scientific Name (if applicable)
- Dosage (in Metric Units)
- Form of Ingredient (e.g., dried herb, extract, mineral)
- Frequency of Dosage (e.g., once daily, twice daily)

7. Consult a Professional for Final Review

- Have the dosage information reviewed by a qualified herbalist, pharmacist, or healthcare professional to ensure accuracy and safety.
- Ensure all the formulations and dosages comply with regulatory standards if the document is to be used for commercial or therapeutic purposes.

8. Final Compilation and Presentation

- Once all formulations and dosages are confirmed, compile the information into a formal document.
- Organize the data clearly, with appropriate headings and a logical structure for easy reference.
- Include any legal disclaimers regarding the use of herbomineral formulations.

9. Save and Distribute the Document

- Save the document in an appropriate format (e.g., PDF, Word) and distribute it as required.

3. Summarize the data of any five formulations with a specific adjuvant for a particular disease given to the patients (2 Hours)

1. Identify Formulations and Adjuvants:

- List the five different formulations that were tested. Each formulation should have a unique combination of active ingredients and an adjuvant.
- Record the adjuvant used in each formulation and its specific role

2. Patient Demographics and Selection:

- Gather data on the patient population, including criteria for inclusion/exclusion (age, gender, disease severity, comorbidities, etc.).
- Specify the number of patients enrolled in the study for each formulation and adjuvant combination.

3.Treatment Protocol:

- Document the dosage and frequency of administration for each formulation.

4.Monitoring and Evaluation Parameters:

- Identify the key health parameters monitored during the study (e.g., disease progression, clinical symptoms, biomarkers).
- Specify the time points at which assessments were made (e.g., baseline, 2 weeks, 4 weeks, etc.).

5. Clinical Outcomes and Data Analysis:

- Record the observed effects of each formulation with the adjuvant, such as improvements in symptoms, disease markers, or adverse reactions.
- Collect data on the efficacy (e.g., response rates, remission) and safety (e.g., side effects, adverse events) of each formulation.

6. Statistical analysis: Summarize the data using appropriate statistical tests (e.g., p-values, confidence intervals) to determine significant differences between formulations or groups.

7. Conclusion and Comparison:

- Compare the performance of each formulation with its specific adjuvant in terms of both efficacy and safety.
- Highlight any formulations that showed superior outcomes or had fewer adverse reactions.
- Summarize recommendations for future research or potential clinical use.

Experiential-Learning 7.4 : 1. Scientific Myth-Breaking in Siddha Medicine.

2.Digitalization of Suvadi with the techniques involved in digitalization and Preservation of Suvadi

Total Activity Hours (6 Hours)

1. Explore the Scientific Myth-Breaking in Siddha Medicine.(3 Hours)

Divide the Students into Two Batches

- Batch A: Tasked with identifying common myths about Siddha medicine.
- Batch B: Responsible for researching and preparing scientifically valid responses to debunk these myths.

Activity -1 : Steps for Batch A: Identifying Myths (1 Hour)

Brainstorming Session:

- Discuss and compile a list of common myths or misconceptions associated with Siddha medicine, such as:
- Siddha medicine is outdated or unscientific.
- Siddha medicines are slow-acting.
- Heavy metals used in Siddha formulations are always toxic.
- Siddha lacks standardisation and quality control.
- Siddha treatments are only for chronic conditions.

Categorization:

- Group myths into relevant categories:
- Safety concerns
- Efficacy misconceptions
- Preparation and standardization myths
- Misinterpretations of traditional practices

Activity -2 : Steps for Batch B: Myth-Breaking with Scientific Evidence (1 Hour 30 minutes)

Research Valid Scientific Explanations:

- Utilize credible resources, including: Siddha pharmacopoeia, Peer-reviewed journals, Textbooks on Siddha pharmacology and clinical studies and Research findings from institutes like CCRS (Central Council for Research in Siddha).

Prepare Counterpoints:

- Provide scientifically backed explanations or corrections for each myth identified by Batch A.
- Highlight existing research or ongoing studies to support the facts.
- Draft the Myth-Breaking Content:
- Format: Myth ? Explanation ? Supporting Evidence.
- Use tables, charts, or infographics for better clarity.

Activity -3 : Collaborative Review (30 minutes)

- Both batches come together to review the myths and their corresponding myth-breaking content.
- Discuss any gaps or improvements in the explanations.

2. Demonstrate the Digitalization of Suvadi with the techniques involved in digitalization and Preservation of Suvadi (3 Hours)

Split Students into Three Batches

- Batch A: Focus on understanding the historical and cultural value of Suvadi and preparing the manuscripts for digitalization.
- Batch B: Learn and implement digitalization techniques.
- Batch C: Handle post-digitalization tasks, including organizing, preserving, and ensuring metadata and accessibility.

Activity -1 : Batch A: Preparation of Suvadi for Digitalization (1 Hour)

Learn About Suvadi- Study the composition of Suvadi - Palm leaf material, writing tools, and ink were used and traditional methods of maintenance.

Assessment and Cleaning:

- Inspect the condition of Suvadi - Identify damages like cracks, fading, or fungal growth.
- Gently clean the manuscripts - Use soft brushes or cloth to remove dust.
- Apply natural oils like citronella to preserve the leaf's flexibility.

Prepare for Imaging - Ensure proper alignment of leaves. Place markers or identifiers for metadata (e.g., title, author, year).

Activity -2 : Batch B: Techniques for Digitalization (1 Hour)

Learn Digitalization Techniques:

Imaging - Use high-resolution cameras or flatbed scanners. Ensure even lighting and no glare. Adjust brightness, contrast, and sharpness for faded texts. Use software like Adobe Photoshop or GIMP to enhance readability.

Digitalization Process - Place Suvadi flat on a clean, stable surface. Capture high-resolution images of each leaf. Use a scanning rig or non-contact scanner to avoid damage.

File Format and Organization - Save files in lossless formats like TIFF or PNG for archival purposes. Create compressed versions (e.g., JPEG, PDF) for accessibility.

Activity - 3 : Batch C: Preservation and Metadata Creation (1 Hour)

Post-Digitalization Tasks:

- Organize digital files in sequence (e.g., by Suvadi title or chapter).
- Ensure all files are named systematically (e.g., Suvadi_Title_Page001).

Metadata Documentation:

Include information such as: Title and author (if known), Estimated date of creation, Language/script details, Description of content.

Long-Term Preservation: Store files in multiple locations. Cloud storage for accessibility. External hard drives for backups. Use archival software to maintain data integrity over time.

Accessibility - Convert digital files into user-friendly formats. Upload to online platforms (if permissible) for public or scholarly access.

Modular Assessment

Assessment method

Instructions - Conduct a structured Modular assessment. Assessment will be for 50 Marks. Keep structured marking pattern. Use different assessment methods in each module for the semester. Keep record of the structured pattern used for assessment. Calculate the Modular grade point as per table 6 C.

Hour

4

1. Case Study Analysis (15 Marks)

This section will test students' practical application of the theoretical knowledge from the module, focusing on how they would handle real-world scenarios regarding medicine preparation, dosage determination, and adjuvant use.

Case Study:

Present a hypothetical case where a patient has been prescribed a Siddha medicine. The patient has specific concerns about the dosage (Alavu) and has not followed the recommended dietary restrictions (Pathiyam).

The student must:

- Discuss how the dosage should be adjusted based on the patient's age, weight, and health condition.
- Analyze the potential consequences of not adhering to Pathiyam (dietary restrictions) during treatment.
- Suggest appropriate adjuvants (Anubanam) to enhance the medicine's efficacy.
- Offer insights into how Suvadi can help ensure the correct use of such formulations in modern practice.

2. Myth Buster (15 Marks)

This section will test the students' ability to critically evaluate myths and evidence-based facts in Siddha medicine. They will be asked to explain common misconceptions and clarify them using both traditional knowledge and scientific evidence.

Task: Provide a list of 3 common myths in Siddha medicine related to dosage, adjuvants, or dietary restrictions.

For each myth:

- Describe the misconception.
- Provide the correct information backed by traditional or scientific evidence.
- Explain why the myth could be harmful or misleading.

3. Research Paper or Project Submission (20 Marks)

This component will evaluate the students' ability to synthesize the Suvadi (manuscriptological) principles into their understanding of traditional medicine preparation. They will research the historical and practical application of Pakkuva Marunthukal and Apakkuva Marunthukal.

Task: Students will submit a short research paper (500-700 words) discussing:

- The history and development of Pakkuva Marunthukal and Apakkuva Marunthukal in Siddha medicine.
- How Suvadi or ancient manuscripts have contributed to their preparation.
- The implications of these formulations in modern-day practice.

Evaluation Criteria:

- Depth and originality of research.
- Relevance to traditional Siddha practices and modern-day validation.

- Clear writing and logical flow of ideas.

(OR)

Any practical in converted form can be taken for assessment.(25 marks)

and

Any of the experiential learning can be taken as an assessment.(25 marks)

Table 4 : Practical Training Activity

(*Refer table 3 of similar activity number)		
Practical No*	Practical name	Hours
1.1	1. Authentication of raw drugs	8
1.2	1. Purification of Lingam. 2. Purification of Sivathai. 3. Kandhaga suthi mentioned in Amirtha kandhi kukkil valladhi 4. Abragha suthi mentioned in Abraha chendhuras	8
1.3	1. Preparation of substitute 2. Substitutes for the extinct raw drugs 3. Comparison of original drug with an adulterant by organoleptic characters	4
2.1	1. Differentiate the potency of Chenduram formulations prepared with Athicharakkukal and without Athicharakkukal 2. Validate the Chendhuras formulations prepared with and without Athicharakkukal	2
2.2	1. Higher order formulations with sathru - mithru charakukal 2. Estimate the end product of the formulation with adum charakku and aadaa charakku	4
2.3	1.Preservation of Karungkozhi maamisam 2. Preservation of animal blood	4
3.1	1. Velvankam madithal 2.Match maarana charakkukal with maaranikkum charakkukal 3.Evaluation of Ega Mooligai Principle	6
3.2	1.Preparation of Vediuppu seyaneer 2.Muppu chunnam	8
3.3	1. Sanka dravakam 2.Vediuppu seena oma dravakam	6
4.1	1. Kombu & Sangu vega vaithal 2.Kuzhipun thiri	8
4.2	1.Balarasa paavanai 2.Meni thean	5
4.3	1. Santhanathi vattru 2. Madakku karisalai thylam 3.Oma dravakam	8
4.4	1.Lakshmi Narayana Chenduram 2.Nunakkai parpam 3.Padigi thalaga parpam	9

5.1	1.Thurinji Manappagu 2.Vilvathi Ilakam 3. Kaara sooda sathu parpam 4.Kadikara linga chenduram 5.Sinthamani Kuligai	8
5.2	1.Kiranthikku kalimbu 2.Thumbai nei 3.Karippan thylam 4. Pachai eruvai	8
5.3	1.Models of extinct instruments 2.Mayana thylam 3.Urukku Kugai	8
5.4	1.Amirtha karanam. 2.Thaniya pudam 3.Gowri Padana Maathirai	6
6.1	1.Preparation of Muppu 2.Thurusu Sembu	6
6.2	1.Preparation of Kaadi 2.Palagarai parpam	8
6.3	1.Kushtangalukku Neeradimuthu vadagam 2..Kodasuzhi maathirai 3.Poora satrasa parpam	8
6.4	1.Koovai kizhangu maa 2.Karunjeeraga Kuzhi thylam	8
7.1	1. The precautionary measures to be followed during Erukkam pal collection 2.The precautionary measures to be followed during Schedule E drugs 3.The precautionary measures to be followed during the purification of Nagam	6
7.2	1.Convert apakkuva Vanga parpam into a pakkuva Vanga parpam 2.Thodam caused by apakkuva marunthukal and parikaaram done and submit the data	4
7.3	1.Adult and peadiatric dose for any five higher order formulation 2. Document for the nanju kurikunangal and nanju murivu for any ten higher order medicines when overdosage given or improper usage. 3. Summarize the ADR report from the hospital and list out the formulations commonly found in ADR and analyse the underlying cause	6
7.4	1. Symbols in Suvadi 2. Palm manuscript reading(Suvadi Vaasithal) 3.Methods of Decoding Siddha Verses	4

Table 5 : Experiential learning Activity

(*Refer table 3 of similar activity number)		
Experiential learning No*	Experiential name	Hours
1.1	1. Poonagam cultivation 2. Collection of Ayam(natural Iron) 3. Collection of Moosambaram 4. Erukkampal collection 5. Collection of Kadalai pulippu 6. Vazhai kizhangu neer	10
1.2	1. Purification of Ayam 2.Purification of Ettikottai 3.Sangu parpam -- Sangu suthi 4.Neeradimuthu vallathi – Serangottai suthi	10
1.3	1.Intentional and unintentional adulteration 2.Laws designed to prevent adulteration. 3.Natural preservatives used in different formulations	6
2.1	1.Parpam, chendhura and urukku formulations with aadhi charakkukal 2. Differentiate the potency of Parpam formulations prepared with Athicharakkukal and without Athicharakkukal 3. Validate the Chunnam formulations prepared with Athicharakkukal and without Athicharakkukal	3
2.2	1. Higher order formulations with Uppu - puli charakukal 2. Compare the outcomes of treatment with formulations containing Uppu-Puli Charakku and those without it."	5
2.3	1.Mulleli maamisam preservation 2.Nathai sathai preservation	5
3.1	1. Rasam madithal by senkottai 2.Vangam madithal by lingam 3.Ayam madithal by veeram	8
3.2	1. Padikaara parpam 2.Pancha sathu chenduram	10
3.3	1. Sandarasa parpam by using Sanka dravakam 2. Linga karuppu by using Vedyuppu dravakam	8
4.1	1.Palagarai and Nathai odu vega vaithal 2. Kaaranool preparation 3.Jeyaveera ranasingi Kayiru	9
4.2	1.Gandhaga paavanai 2.Karisalai thean 3. Anda Seyaneer 4.Poora karuppu	10
4.3	1.Sitramutti madakku thylam 2.Inji vattru 3.Rasa chendhura dravakam	10
4.4	1.Saveera chendhura 2.Lavana karuppu 3.Vellai paadana mezhugu 4.Padiga poonaga chendhura	10
5.1	1.Aya bringha raja paanitham 2.Puli chunnam 3.Akarakara mezhugu 4. Sithathi ennai	10

5.2	1.Par pasai 2.Asana varthi 3.Sirangu kalimbu 4.Kilinal mezhugu 5.Aayilennai	10
5.3	1.Pancha chunna kugai 2.Valai rasam by using Pathanga karuvi	9
5.4	1. Amirthakaranam to any three iron-containing formulation. 2. Purification of formulations by Thaniya pudam Komoothira thailam Baskara lavanam	10
6.1	1. Document various aspects of Rasavatham from literature 2.Preparation of Thurusu guru	9
6.2	1.Preparation of Amuriuppu 2.Preparation of Thambira parpam	10
6.3	1.Kaara rasa chendhuram 2.Veera mezhugu 3.Sanjeevi maathirai	10
6.4	1.Kovai thandu sarkkarai 2.Serankottai Kuzhithylam 3.Santhana theeneer ney(santhana thylam)	10
7.1	Precautionary method in the purification and preparation of formulations Senkottai suthi Agasthiyar kuzhambu Gandhaga sudar thylam	9
7.2	1.Method to convert apakkuva Karpooora silasathu parpam into pakkuva Karpooora silasathu parpam 2.Method to convert apakkuva Annabedhi chendhuram into pakkuva Annabedhi chendhuram	5
7.3	1. Pathiyam recommended for any twenty different type of higher order formulations 2. Document for the dose of ingredients in modern metric measures for any twenty herbomineral formulations. 3.Data of any five formulations with a specific adjuvant for particular disease given to the patients	6
7.4	1. Scientific Myth-Breaking in Siddha Medicine. 2.Digitalization of Suvadi with the techniques involved in digitalization and Preservation of Suvadi	6

Table 6 : Assessment Summary: Assessment is subdivided in A to H points**6 A : Number of Papers and Marks Distribution**

Subject Code	Paper	Theory	Practical	Total
SIDPG-AB-GMK	1	100	200	300

6 B : Scheme of Assessment (Formative and Summative Assessment)**Credit frame work**

SIDPG-AB-GMK consists of 7 modules totaling 16 credits, which correspond to 480 Notional Learning Hours. Each credit comprises 30 Hours of learner engagement, distributed across teaching, practical, and experiential learning in the ratio of 1:2:3. Accordingly, one credit includes 5 hours of teaching, 10 hours of practical training, 13 hours of experiential learning, and 2 hours allocated for modular assessment, which carries 25 marks.

Formative Assessment :Module wise Assessment:will be done at the end of each module. Evaluation includes learners active participation to get Credits and Marks. Each Module may contain one or more credits.

Summative Assessment:Summative Assessment (University examination) will be carried out at the end of Semester II.

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

Module Number & Name (a)	Credits (b)	Actual No. of Notional Learning Hours (c)	Attended Number of notional Learning hours (d)	Maximum Marks of assessment of modules (e)	Obtained Marks per module (f)	MGP =d* f/c*e*100
M1. Raw Drug	2	60		50		
M2. Principles in drug classification (Charakku thathuvam) and Storage Practice	1	30		25		
M3. Principles of Drug preparation	2	60		50		
M4. Unique techniques in drug preparation	3	90		75		
M5. Marunthukal and Upakaranangal	3	90		75		
M6. Unique drug preparations	3	90		75		
M7. Special concerns in Siddha Pharmaceuticals	2	60		50		
MGP = ((Number of Notional learning hours attended in a module) X (Marks obtained in the modular assessment) / (Total number of Notional learning hours in the module) X (Maximum marks of the module)) X 100						

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

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

SGPA = Average of MGP of all modules of all papers = add all MGPs in the semester/ no. of modules in the semester
Evaluation Methods for Modular Assessment

A S.No	B Module number and Name	C MGP
1	M1.Raw Drug	C1
2	M2.Principles in drug classification (Charakku thathuvam) and Storage Practice	C2
3	M3.Principles of Drug preparation	C3
4	M4.Unique techniques in drug preparation	C4
5	M5.Marunthukal and Upakaranangal	C5
6	M6.Unique drug preparations	C6
7	M7.Special concerns in Siddha Pharmaceutics	C7
	Semester Grade point Average (SGPA)	(C1+C2+C3+C4+C5+C6+C7) / Number of modules(7)

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

6 E : Question Paper Pattern

MD/MS SIDDHA Examination SIDPG-AB-GMK Sem II

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

		Number of Questions	Marks per Question	Total Marks
Q 1	Application-based Questions (ABQ)	1	20	20
Q 2	Short answer questions (SAQ)	8	5	40
Q 3	Analytical based structured Long answer question (LAQ)	4	10	40
				100

6 F : Distribution for summative assessment (University examination)

S.No	List of Module/Unit	ABQ	SAQ	LAQ
(M-1)Raw Drug (Marks: Range 5-20)				
1	(U-1) Introduction, Collection and Authentication	No	Yes	No
2	(U-2) Purification of raw materials	Yes	Yes	Yes
3	(U-3) Alternatives, Adulterants and Preservatives	No	Yes	No
(M-2)Principles in drug classification (Charakku thathuvam) and Storage Practice (Marks: Range 5-20)				
1	(U-1) Athi charakku (Prodrug) & Vaithiya muraikku uthavum charakkugal (Drugs used in medicines)	No	Yes	No
2	(U-2) Vatha muraikku uthavum charakkugal, Nanavitha charakkugal (Miscellaneous drugs)	No	Yes	Yes
3	(U-3) Good storage practice	No	Yes	Yes
(M-3)Principles of Drug preparation (Marks: Range 5-20)				
1	(U-1) Ega mooligai prayogam and Marana prayogam	Yes	Yes	Yes
2	(U-2) Muppu chunna prayogam and Seyaneer prayogam	Yes	Yes	Yes
3	(U-3) Dravaka prayokam	Yes	Yes	Yes
(M-4)Unique techniques in drug preparation (Marks: Range 5-20)				
1	(U-1) Charakku vega vaithal ,Kaaranoor , Thiri and Kayiru marunthugal	Yes	Yes	Yes
2	(U-2) Pavanai, Thean, Karuppu and Seyaneer	Yes	Yes	Yes
3	(U-3) Vattru & Madakku	Yes	Yes	Yes
4	(U-4) Traditional simple methods for higher order medicine preparation	No	Yes	Yes
(M-5)Marunthukal and Upakaranangal (Marks: Range 5-20)				
1	(U-1) Definition, types of Ul marunthukal and its preparations	Yes	Yes	Yes
2	(U-2) Types of Veli marunthukal and its preparations	Yes	Yes	Yes
3	(U-3) Traditional instrumentation for in house pharmacy	Yes	Yes	Yes
4	(U-4) Purification of prepared medicines	No	Yes	Yes
(M-6)Unique drug preparations (Marks: Range 5-20)				
1	(U-1) Muppu and Rasavatham	Yes	Yes	Yes
2	(U-2) Kaadi and Amuriuppu	Yes	Yes	Yes
3	(U-3) Pachai Vettu Marunthukal	Yes	Yes	Yes
4	(U-4) Sarkkarai , Maavu, Theeneer ennai and Kuzhi thylam	Yes	Yes	Yes

(M-7)Special concerns in Siddha Pharmaceuticals (Marks: Range 5-15)				
1	(U-1) Precautionary measures in Siddha Pharmaceuticals	No	Yes	Yes
2	(U-2) Pakkuva and Apakkuva marunthukal	No	Yes	Yes
3	(U-3) Alavu, Anubanam and Pathiyam	No	Yes	Yes
4	(U-4) Decoding, Palm manuscript, and Myths	No	Yes	Yes

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

Instructions for the paper setting.

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

Blueprint		
Question No	Type of Question	Question Paper Format
Q1	Application based Questions 1 Question 20 marks All compulsory	M1.U2 Or M3.U1 Or M3.U2 Or M3.U3 Or M4.U1 Or M4.U2 Or M4.U3 Or M5.U1 Or M5.U2 Or M5.U3 Or M6.U1 Or M6.U2 Or M6.U3 Or M6.U4
Q2	Short answer Questions Eight Questions 5 Marks Each All compulsory	1. M2.U1 Or . M3.U1 Or . M4.U1 Or . M5.U1 Or . M1.U1 2. M1.U2 Or . M2.U2 Or . M3.U2 Or . M4.U2 Or . M5.U1 3. M5.U1 Or . M6.U1 Or . M7.U1 Or . M1.U3 Or . M2.U3 4. M7.U2 Or . M6.U2 Or . M6.U3 Or . M5.U2 Or . M2.U2 5. M7.U4 Or . M5.U4 Or . M4.U3 Or . M4.U4 Or . M6.U3 6. M3.U3 Or . M1.U2 Or . M6.U4 Or . M2.U3 Or . M1.U3 7. M6.U3 Or . M5.U3 Or . M3.U3 Or . M7.U3 8. M3.U2 Or . M4.U3 Or . M5.U2 Or . M6.U4
Q3	Analytical Based Structured Long answer Questions Four Questions 10 marks each All compulsory	1. M6.U3 Or . M4.U2 Or . M2.U3 Or . M5.U3 2. M1.U2 Or . M3.U3 Or . M3.U1 Or . M6.U4 Or . M6.U3 3. M5.U2 Or . M2.U2 Or . M4.U1 Or . M1.U2 4. M4.U3 Or . M3.U2 Or . M5.U4 Or . M6.U1 Or . M5.U1

6 H : Distribution of Practical Exam (University Examination)

S.No	Heads	Marks
1	MAJOR PRACTICAL - Siddha medicine preparation Marks: 1 x 80 Duration : 3 Hours The major practical examination will include Siddha medicine preparation ensuring no repetition of practicals and maintaining a unique task for each student. 1. Ingredients Marks - 5 Task: List and arrange the required ingredients and explain their medicinal properties. Assessment Criteria: Correct selection of ingredients, understanding of therapeutic importance and proper handling and hygiene. 2. Identification of Raw Drugs Marks - 10 Task: Identify and describe each raw drug used, Differentiate between genuine and adulterated samples. Assessment Criteria: Accuracy in identifying raw drugs, Proper classification based on Siddha principles and Clear explanation of properties and uses. 3. Instruments Marks - 5 Task: Identify and explain the function of instruments. Demonstrate correct usage. Assessment Criteria: Proper selection of tools, Safe and hygienic handling. Knowledge of traditional and modern instruments. 4. Method of Preparation Marks - 30 Task: Execute step-by-step preparation as per Siddha texts and maintain proper consistency, heating, grinding, etc. Assessment Criteria: Adherence to prescribed method, Accuracy in measurement and proportion and Skill-full execution of each step. Clean and disciplined	80

workspace.

5. Quality and Quantity of End Product

Marks - 20

Task: Present the final product for evaluation, Check for purity, consistency, and standardization.

Assessment Criteria: Proper colour, texture, and odour. Correct quantity as per Siddha guidelines and Free from contamination or errors

6. Labelling

Marks - 10

Task: Prepare a label with all essential details and Include name, Application, dosage, vehicle, indications, storage and shelf life

Assessment Criteria: Correct and complete labelling, Neatness and clarity and Adherence to regulatory guidelines.

2

MINOR PRACTICAL – Marks: 1 x 60 Duration : 1 Hour 30 minutes

60

The minor practical examination will include Siddha medicine preparation or Maarana prayokam or Charakku vega vaithal or Authentication of raw drugs or Purification of raw drugs, ensuring no repetition of practicals and maintaining a unique task for each student.

A. Siddha medicine preparation

1. Ingredients

Marks - 5

Task: List and arrange the required ingredients, Explain their medicinal properties.

Assessment Criteria: Correct selection of ingredients, Basic understanding of therapeutic importance and Proper handling and hygiene.

2. Identification of Raw Drugs

Marks - 5

Task: Identify and describe each raw drug used. Differentiate between genuine and adulterated samples.

Assessment Criteria: Accuracy in identification. Proper classification based on Siddha principles. Basic knowledge of medicinal properties.

3. Instruments Marks - 5

Task: Identify and explain the function of instruments. Demonstrate correct usage.

Assessment Criteria: Proper selection of tools.Safe and hygienic handling.Basic understanding of traditional instruments.

4. Method of Preparation

Marks - 25

Task: Execute step-by-step preparation as per Siddha texts. Follow the correct method for processing.

Assessment Criteria: Adherence to prescribed method.Accuracy in measurement and proportion.Proper execution with discipline.Clean and organized workspace.

5. Quality and Quantity of End Product

Marks - 15

Task: Present the final product for evaluation. Ensure proper consistency and standardization.

Assessment Criteria: Acceptable texture, colour, and odour. Correct quantity as per guidelines. Free from contamination or errors.

6. Labelling

Marks - 5

Task: Prepare a label with all essential details. Include name, ingredients, application, dosage, vehicle, indications, shelf life and storage.

Assessment Criteria: Correct and complete labeling. Neatness and clarity. Adherence to basic Siddha guidelines.

(OR)

B. Maarana prayokam

1. Ingredients

Marks - 5

Task: List and arrange the raw materials required for incineration. Explain the role of each ingredient.

Assessment Criteria: Correct selection of ingredients. Understanding of purification methods and Proper handling and storage.

2. Identification of Raw Drugs

Marks - 5

Task: Identify and describe the raw materials used in the incineration process. Ensure proper purification (Suddhi).

Assessment Criteria: Accuracy in identification. Knowledge of purification techniques. Understanding of the significance of each raw drug.

3. Instruments

Marks -5

Task: Identify and explain the function of instruments used in Maarana Prayokam. Demonstrate correct usage.

Assessment Criteria: Proper selection of instruments, Safe and hygienic handling and Understanding of Siddha traditional methods.

4. Method of Preparation

Marks - 25

Task: Perform step-by-step Maaranam. Follow the correct heating cycles and processing techniques.

Assessment Criteria: Proper execution of purification, incineration and other process. Adherence to correct temperature and duration, Disciplined and clean workspace. Observing color change and end product formation.

5. Quality and Quantity of End Product

Marks -15

Task: Evaluate the final product. Ensure proper texture and standardization.

Assessment Criteria: Correct fineness and ash formation. Proper color, odor, and consistency. Free from contamination or errors.

6. Labelling

Marks -5

Task: Prepare a label with all essential details. Include name, method, uses, and storage.

Assessment Criteria: Correct and complete labeling. Neatness and clarity. Adherence to regulatory guidelines.

(OR)

C. Charakku vega vaithal

1. Ingredients

Marks - 5

Task: List and arrange the raw materials required for processing.

Assessment Criteria: Correct selection of ingredients. Understanding of their medicinal properties. Proper handling and hygiene.

2. Identification of Raw Drugs

Marks- 5

Task: Identify and describe the raw substances. Differentiate between genuine and adulterated samples.

Assessment Criteria: Accuracy in identification. Understanding of processing techniques. Knowledge of purification methods.

3. Instrument

Marks -5

Task: Identify and explain the function of instruments used in the processing. Demonstrate correct usage.

Assessment Criteria: Proper selection of tools Safe and hygienic handling. Understanding of Siddha traditional techniques

4. Method of Preparation

Marks -25

Task: Execute step-by-step Charakku Vega Vaithal. Follow the correct Siddha processing methods.

Assessment Criteria: Adherence to prescribed method. Accuracy in temperature and processing time. Proper execution of each step. Clean and disciplined workspace.

5. Quality and Quantity of End Product 10

Marks -

Task: Present the final processed substance for evaluation. Ensure proper consistency and standardization.

Assessment Criteria: Correct texture, colour, and odour. Proper weight and yield as per Siddha standards. Free from contamination or processing errors.

6. Labelling 10

Marks -

Task: Prepare a label with all essential details. Include name, ingredients, method, uses, and storage.

Assessment Criteria: Correct and complete labelling. Neatness and clarity. Adherence to standard guidelines.

(OR)

D. Authentication of raw drugs

1. Macroscopic Identification **10**

Marks -

Task: Identify the given raw drug based on macroscopic features

Assessment Criteria: Identify using colour, odour, taste, texture, shape, and size. Write correct botanical name, family, and part used

2. Physicochemical Tests **-20**

Marks

Task: Perform any two physicochemical tests

Assessment Criteria: Carry out any two of the following: Ash value, Extractive value, Loss on Drying (LOD), etc. Compare results with standard values

3. Phytochemical Analysis **- 20**

Marks

Task: Perform any two phytochemical tests

Assessment Criteria: Perform any two of the following: Alkaloids, Flavonoids, Tannins, Saponins, etc. Record and interpret correct observations

4. Documentation & Presentation **- 10**

Marks

Task: Record and present findings clearly

Assessment Criteria: Proper recording of test results, Structured documentation and Neatness and completeness of presentation

(OR)

E. Purification of Raw drug

1. Introduction to Purification (Suddhi)

Marks: 5

Task: Present an introduction to the concept of Suddhi and explain its significance in traditional medicine systems.

Assessment Criteria: Purpose of purification (e.g., detoxification, potency enhancement) and Basic understanding of principles and general techniques

2. Purification Procedure

Marks: 45

a. Cleaning and Pre-Treatment

Marks: 10

Task: Perform initial steps such as washing, scrubbing, or any necessary pre-treatment to remove physical impurities.

Assessment Criteria: Appropriate cleaning method and execution. Recording of observations during cleaning

b. Main Purification Process

Marks: 25

Task: Carry out the classical purification method prescribed for the specific raw drug.

Assessment Criteria: Strict adherence to the prescribed method, Accuracy in preparation and process execution. Monitoring and documentation of physical or chemical changes.

c. Post-Purification Evaluation

Marks:

10

Task: Assess the purified sample and document post-process characteristics such as texture, color, luster, solubility, or any specific identifying features.

Assessment Criteria: Clear and precise documentation of outcomes, Logical interpretation and conclusion based on changes observed.

3. Comparison with Classical References

Marks:

10

Task: Compare the post-purification results with classical descriptions or standards mentioned in Siddha texts or pharmacopoeia.

Assessment Criteria: Use of appropriate textual/pharmacopoeial references and Ability to relate practical observations with classical descriptions

3	Viva • Internal examiner - 20 Marks • External examiner - 20 Marks	40
4	Logbook (Activity record) Marks - 10	10
5	Practical Record Marks - 10	10
Total Marks		200

Reference Books/ Resources

S.No	References
1	Selinus O. Essentials of Medical Geology: Impacts of the Natural Environment on Public Health. 1st ed. Amsterdam: Elsevier; 2005 Jan 25
2	Prema S. Agathiyar mani 4000 Ennum vaithiya Sinthamani Venba 4000. Chennai: Thamarai Noolagam; 2006 Sep
3	Nadkarni AK. Dr K.M. Nadkarni's Indian Materia Medica, Vol 1. Bombay: Popular Prakashan; 1908.
4	Balaramaiya V. Vadha vaithiyathukaathi. Chennai: Aruljothi Pathipagam; 2016.
5	Madhavan VR. Agathiyar sarakku suthi 150. Thanjavur: Tamil Palkalaikalagam; 2009 Nov.
6	Sambasivam Pillai T. Tamil-English Dictionary of Medicine, Chemistry, Botany and Allied Sciences (Based on Indian Medical Science). Madras: Directorate of Indian Medicine and Homeopathy; 1991
7	Kannusami Pillai. Sigichcha Rathana Dheepam Irandam Pagamagiya Vaithiya Sindhamani. Chennai: Rathna Nayakkar and Sons; 2007.
8	Ramachandran B. Agathiyar 12000 Ennum Perunool Kaviyam. Vadapalani, Chennai: R.S. Printers; 1994.
9	Balaramaiya V. Anubava Siddha Vaithiya Muraigal. Chennai: Aruljothi Printers; 1989.
10	Uthamarayan CS. Siddhar Aruvai Maruthuvam. Sivakasi: Indian Medicine and Homeopathy, The Nadar Press Limited; 2013.
11	Balaramaiya V. Siddha Maruthuva Marundhu Seimuraigal. Chennai: Kanal Veliyeedu; 2015.
12	Deva Aasirvatham Samuvel. Marunthu Sei Iyalum Kalaiyum. Chennai: Indian Medicine and Homeopathy.
13	Gowri S. Pulipani Karpa Theetchai. Chennai: Indian Medicine and Homeopathy; 2011.
14	Mohan RC. Theraiyar Aruliseitha Thaila Varukka Churukkam. Vadapalani, Chennai: Thamarai Noolagam; 2007 Mar.
15	Balaramaiya V. Agathiyar Antharanga Theetcha Vithi. Chennai: Aruljothi Pathipagam; 1994.
16	Veeraperumaal Pillai S. Nam Naatu Vaithiyam. Coimbatore: Sanmuganandha Book Dippo; 2012.
17	Sornamariyammal I. Aga Pura Marunthukalin ilakkanamum vilakamum. Chennai: Indian Medicine and Homeopathy; 2019.
18	Arangarasan S, Sathasivam M, editors. Agathiyar attavanai vagadam. Sri Velan Press; 1991.
19	Ramachandran SB. Agathiyar pallu - 200. Thamarai Noolagam; 2000.
20	Ramachandran B. Yakobu Vaithiya Sinthamani - 700. Chennai: Thamarai Noolagam; 1996.
21	The Siddha Formulary of India, Part 1 & 2. Delhi: Government of India, Ministry of Health and Family Welfare; The Controller of Publication; 1992.
22	Kannusami Pillai C. Sigicha Ratna Deepam Ennum Vaithiya Nool, Rathna Nayakkar & Sons, Chennai
23	Kuppusamy Mudhaliar KN, Uthamarayan CS. Siddha Vaithiya Thirattu. Chennai: Indian Medicine and Homeopathy; Canon Press Private Limited; 2009.

24	Kannusami Pillai C. Kannusamy Parambarai Vaithiyam. Rathna Nayakkar & Sons; 2006
25	Kannusami Pillai C. Kannusamiyam Ennum Vaithiya Sekaram. Rathna Nayakkar & Sons.
26	Thiyagarajan R. Gunapadam Thathu - Jeevavaguppu. Indian Medicine and Homeopathy; 2004.
27	Murugesamudaliar K S. Gunapadam – Mooligaivaguppu. 9th ed. Indian Medicine and Homeopathy; The Nadar Press Limited; Sivakasi; 2013.
28	Mohan RC. Bogar - 7000. Thamarai Noolagam; 2000.
29	Balaramaiya V. Siddha Maruthuva Nool Thirattu Chennai: Kanal Veliyeedu; 2015.
30	Dr.S.Suresh, M.D(S), Gunapadam Marunthakkaviyal -I 3rd edition ,Today's Publication, Chennai ; 2024
31	Abdulla Saiyub PM. Rasa vatha Sinthamani, Thamarai Noolagam; 2004.
32	Dr.S.Venkatrajan, Agathiyar 2000, Part III, Saraswati mahal noolagam, 5Th Edition,2002.
33	Balaramaiya V. Siddha Maruthuva Marundhu Sei perumuraigal. Chennai: Kanal Veliyeedu; 2015.
34	Krishnasamy Nadik, Sarabenthirar Vaithiya Rathnavali, 9th edition , Saraswathi Mahal Noolagam, Sivagasi Press, Thanjavoor,2014
35	S.B. Ramachandran, Rana vaithiya sindhamani, tamarai noolagam, 1997.
36	A. Sundrarajan, Siddha Maruthuva Kaimurai Vaithiyam, Indian medicine and homeopathy, Chennai.
37	R.C.Mohan, Agathiyar vaithiya vallathi, thamarai noolagam, 2001
38	Pa. Mugamathu Abdulla sayabhu, Siddha Anubhoga Vaithiya Navaneetha Thirattu part 1-10, 1st edition, va.oo.si noolagam, Chennai, 2010
39	A.Sivakozhunthu, Anubava vaithiyam, azhagu sivaraman pathipagam
40	Ramamoorthy, siddha maruthuvamum noitheerkkum muraigalum, Saraswati mahal, Tanjore
41	Kandhaswamy Mudhaliyar, Bogar Nigandu - 1700, B.Ratna Nayakkar Sons, Chennai
42	R.C.Mohan, Dhanvanthiri vaithiyam 1000, thamarai noolagam , Chennai
43	S.Thilagam, Anubava vaithiya thirattu,saraswathi mahal noolagam, 2006.
44	Deventhra Natha Pandithar, Kaikanda Anuboga Vaithiya Perumkural, K.S. Kanagasabai Mudhaliyar, Chennai
45	Dr.T.Mohan Raj, Natchathrakandam - 1200 Matrum Panda Puthaiyal & Vattu Nool
46	Ramachandran B. Agathiyar Amutha Kalai Gnanam 1200, Thamarai Noolagam Chennai: 1996.
47	Ramachandran B. Agathiyar 12000 Moontravathu Kandam.Thamarai Noolagam Chennai: 1999.
48	Suvadi Iyal, Munaivar P.Subramaniam, Ulaga Tamil Araichi Niruvanam,Tharamani, Chennai
49	Paramasivam TK. Suvadipathippu Nerimuraigal. Thanjavur: Tamil Palgalaikazhagam
50	Ilankumaran R. Suvadipathippu Varalaru. Thanjavur: Tamil Palgalaikazhagam

51	Tamil Palgalaikazhagam. Tamil Suvadigal Vilakka Attavanai. Thanjavur
52	Balasundharam S. Tamililakana Noolgalum Padaverupadugalum. Thanjavur: Tamil Palgalaikazhagam.
53	Proceedings of WHO Training - cum workshop, Govt of India, Dept of Indian Systems of Medicine & Homoeopathy
54	T.Kuppuswamy Naidu, Yakobu Vatha Vaithiya Korvai, Madurai Puthumandapam Book shop, 1932

Abbreviations

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

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