CURRICULUM AND COURSE SPECIFICATIONS FOR DIPLOMA IN HERBAL SCIENCE AND DRUG TECHNOLOGY/HERBAL THERAPY

INTRODUCTION

In response to the growing global demand for holistic, natural, and culturally grounded healthcare solutions, **Cyrillic College** has developed a forward-thinking **Diploma in Herbal Science and Drug Technology/Herbal Therapy** curriculum. This program is designed to empower a new generation of natural health practitioners with the knowledge, clinical experience, and ethical foundation necessary to thrive in integrative health systems

Over the past decade, the landscape of healthcare has undergone a profound transformation. Rising interest in complementary and integrative health care, combined with evolving public health challenges, has revealed the urgent need for trained professionals who can integrate natural healing methods with scientific understanding.

As communities continue to seek accessible, preventative, and culturally resonant forms of care, phytotherapy stands out as a time-honored yet innovative path forward.

Cyrillic College, with recognition from the **Ogun State Alternate Medicine Board**, has responded to this call by reimagining its Herbal Science and Drug Technology training program. Drawing from the wisdom of traditional healing systems and integrating modern biomedical sciences, this curriculum represents a bridge between tradition and transformation.

The need for this curriculum revision emerged from a series of sector-wide consultations, practitioner feedback, and evolving global health indicators. A panel of educationists, medical herbalists, and curriculum development experts was convened to identify gaps in earlier training models. The team noted key concerns:

- Limited clinical exposure during training
- Absence of courses on health ethics, digital literacy, and public health law
- Increasing patient demand for professional herbal consultations within regulated environments

With these insights, the curriculum was redesigned to feature:

- **Supervised Clinical Experience (SCE)** as a core requirement
- Enhanced course content in **Biomedical Sciences, Public Health, Research Methodology, Diagnostics, and Ethics**
- A multi-semester progression from foundational sciences to advanced herbal formulations and therapeutic applications

Additionally, digital learning components and community-based experiences have been introduced to accommodate part-time and remote learners, as well as practitioners already in service.

The goal of this program is to produce practitioners who are:

- Clinically competent and ethically grounded
- Knowledgeable in both traditional and modern aspects of phytotherapy
- Ready to contribute meaningfully to community-based and integrative healthcare models

The **Diploma in Herbal Science and Drug Technology/ Herbal Therapy** is more than a qualification—it is a calling to heal, to preserve indigenous knowledge, and to innovate responsibly in the service of human wellbeing.

DANIEL OMISANDE

REGISTRAR,

15 MAY, 2021.

ADMISSION REQUIREMENTS

PERSONAL QUALIFICATION

i) Physically and mentally fit.

ii) Able to communicate and work well with people in different settings

iii) Able to guide, supervise and give good leadership to his subordinates

iv) Be willing to live and work in the community

v) Mature, approachable, friendly and honest

vi) Able to work independently when necessary and make good judgment.

DURATION AND ENTRY QUALIFICATIONS

MODE OF STUDY	DURATION	ENTRY QUALIFICATIONS
ONLINE/ONSITE	12 MONTHS	5 Credits at O'Level including Mathematics and English Language

CERTIFICATE AWARDED

Diploma in Herbal Science and Drug Technology/Herbal Therapy

GENERAL INFORMATION

Structure of the Programme:

The Diploma in **Herbal Science and Drug Technology/Herbal Therapy** is a terminal programme structured to twelve (12) months (two semesters). Each semester shall comprise 16 contact weeks of structured academic activities, including lectures, practical exercises, quizzes, tests, and examinations. These programmes also incorporate mandatory periods of Supervised Clinical Experience (SCE), which serve to consolidate classroom learning with practical, real-world exposure.

Conditions for Award of Diploma:

The training institution shall award Diploma to students who successfully complete the full programme, including all prescribed coursework, examinations, the final project and the Supervised Clinical Experience (SCE).

GRADING SYSTEM

A standard **Five (5) Point Grading Scale** shall apply across all programs

FOR ONSITE STUDY:

Score Range	Grade	Grade Point
70 – 100%	A	5.00
60 – 69%	B	4.00
50 – 59%	C	3.00
45 – 49%	D	2.00
40 – 44%	E	1.00
Below 40%	F	0.00

FOR ONLINE STUDY:

Score Range	Grade	Grade Point
90 – 100%	A	5.00
80 – 89%	B	4.00
70 – 79%	C	3.00
60 – 69%	D	2.00
50 – 59%	E	1.00
Below 50%	F	0.00

Classification of Diploma:

Distinction	-	CGPA of 3.5 – 4.00
Upper Credit	-	CGPA of 3.0 – 3.49
Lower Credit	-	CGPA of 2.5 – 2.99
Pass	-	CGPA of 2.5 – 2.99
Fail	-	CGPA of 2.5 – 2.99

CONTINUOUS ASSESSMENT POLICY

1. **Onsite Studies:** 30% of each course grade shall be from continuous assessment and 70% from end-of-semester examinations.
2. **Online Studies:** 50% of the course grade shall be assessed internally by lecturers ('INTERNALS'), and 50% externally through the examination administered by the college ('EXTERNALS').
3. Continuous assessments may include formal and informal tests, workshop evaluations, laboratory work, field assignments, presentations, and other discipline-relevant methods.
4. Colleges must maintain computer systems with appropriate software to manage assessment records.
5. Teaching standards and examination quality shall be monitored through student surveys and peer evaluation. Outcomes will be shared with lecturers for continuous improvement.

SEMESTER EXAMINATIONS

1. Onsite students shall write semester exams weighted at 70%, while online students will take 100-MCQ (Multiple Choice Question) exams worth 50% of the final score. Students will be evaluated on their practitioner-readiness.
2. A minimum score of 40% (aggregate of C.A. and exam) is required to pass any course.
3. Eligibility to sit for exams includes 75% class attendance, filled course forms, and complete registration.
4. Students without valid continuous assessment records or who fail to meet INTERNALS/CA will be denied access to EXTERNALS/Examinations.

RESIT EXAMINATIONS AND POLICY

1. **No resit is allowed within the same semester.**
2. **First resit attempt**: N5,000 per credit unit.
3. **Second resit attempt**: N7,500 per credit unit.
4. **Third and subsequent attempts**: N10,000 per credit unit and mandatory re-enrolment in the course.
5. All attempts and scores shall be recorded and visible on the student's academic transcript.
6. This system ensures responsibility, academic integrity, and supports institutional sustainability.

EXAMINATION CONDUCT

Rules apply to both onsite and online students. Highlights include:

1. Punctuality: 30-minute window before and after exam commencement.
2. Ban on unauthorized materials, exchange of papers, and electronic devices.
3. Mandatory presentation of ID, fee clearance, and proper exam registration.
4. No impersonation, no leakages, no external assistance.
5. Strict supervision and surveillance are mandatory for online exams.
6. All misconducts carry stiff penalties, including carry-overs/backlogs, suspension, or expulsion depending on severity and recurrence.

PENALTIES FOR MISCONDUCT

Examples include:

1. Possession of unauthorized materials: Repeat the year.
2. Impersonation, assault on invigilator, or exam leakages: Immediate expulsion.
3. Non-submission of scripts, absence without excuse, and plagiarism: Carry-over or project rewrite.
4. Recurrent cheating: Dismissal without re-admission.

SUPERVISED INDUSTRIAL/CLINICAL EXPERIENCE (SIE)

1. Duration: Minimum of **15 weeks** between sessions.
2. Minimum of **10 out of 15 weekly visits** required.
3. Visits must be to a **licensed practitioner** or institution.
4. A **reference letter** will be provided by the college.
5. At completion, students submit:
    - A **logbook** or evaluation sheet.
    - A letter of performance from the host institution.

GPA/CGPA CALCULATION

1. **GPA (Grade Point Average):**

   GPA = Total (Grade Point × Credit Unit) ÷ Total Credit Units Taken

2. **CGPA (Cumulative Grade Point Average):**

   CGPA = Sum of Grade Points × Credit Units × 0.8 ÷ Total Registered Credit Units

This formula provides a weighted measure of overall academic performance across the duration of study.

FIRST SEMESTER

CODE	COURSE	DURATION	UNITS
BMS 101	Introduction to Biomedical Sciences	90 hrs	6
RES 101	Research Methodology	45hrs	3
IPH 101	Introduction to Public Health	45hrs	3
HEM 101	Herbal Drug Technology	45hrs	3
HEM 102	Introduction to Phytotherapy	45hrs	3
HEM 103	Introduction to Herbal Laboratory Technology	45hrs	3
HEM 104	Pharmacognosy	45hrs	3
	TOTAL	360hrs	24

SECOND SEMESTER

CODE	COURSE	DURATION	UNITS
RES 201	Research Project	60hrs	3
SIWES 201	Supervised Industrial Work Experience Scheme (SIWES)	240hrs	4
CLI 201	Clinical Examinations and Diagnostics	45hrs	3
CIH 201	Ethical and Business Management Practices in Complementary and Integrative Healthcare	45hrs	3
HEM 201	Cultivation and Preservation of Herbal Drugs	45hrs	3
HEM 202	Herbal Formulations and Dispensary	45hrs	3
HEM 203	Herbal Therapeutics and Materia Medica	45hrs	3
HEM 204	Ancillary Therapies Related to Phytotherapy	45hrs	3
	TOTAL	570hrs	25

COURSE TITLE	**INTRODUCTION TO BIOMEDICAL SCIENCES**
COUSRE CODE	**BMS 101**
DURATION	**90 HRS**
UNIT	**6.0**

GOAL:

This course provides a structured and clinically relevant foundation in biomedical sciences for students of complementary and integrative health sciences. It integrates core principles of anatomy, physiology, pathology, microbiology, biochemistry, nutrition, immunology, and pharmacology into a unified framework for understanding the human body in health and disease. Emphasis is placed not merely on knowledge acquisition, but on **clinical interpretation, patient safety, and responsible practice**. Students will develop the ability to recognize normal and abnormal processes, understand disease mechanisms, identify red flags, and apply biomedical reasoning within the scope of integrative healthcare. By the end of the course, students will possess the scientific literacy and clinical awareness required to engage safely, competently, and credibly in holistic health practice.

GENERAL OBJECTIVES:

1. Understand the scope and relevance of biomedical sciences in integrative healthcare practice.
2. Understand the structure and functional organization of the human body.
3. Understand fundamental mechanisms underlying health and disease.
4. Understand the role of microorganisms, immunity, and infection control in health.
5. Understand biochemical and nutritional principles governing body processes.
6. Understand the principles of pharmacology and safe therapeutic practice.
7. Apply biomedical knowledge in basic clinical reasoning, patient assessment, and decision-making.
8. Recognize red flag conditions and practice within safe professional limits.

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
1.0 Understand foundations of biomedical sciences 2.0 Understand the structure and function of the human body.	On completion of this course, the student be able to: 1.1 Define biomedical sciences and explain their role in healthcare. 1.2 Explain the relevance of biomedical sciences to complementary and integrative medicine. 1.3 Describe the levels of biological organization (cell, tissue, organ, system). 1.4 Define homeostasis and explain its importance in health. 1.5 Define disease and outline its general causes (genetic, environmental, infectious, lifestyle). 1.6 Explain the relationship between biomedical knowledge and patient safety. 1.7 Describe ethical and legal responsibilities in clinical practice. 1.8 Recognize the limits of practice and the importance of referral. 2.1 Describe the structure and function of major body systems: • Musculoskeletal • Cardiovascular • Respiratory • Digestive • Nervous • Endocrine • Urinary • Reproductive • Immune • Integumentary 2.2 Relate structure to function in each system. 2.3 Explain the following physiological processes

	(homeostasis, cell division, inflammation, cellular respiration, metabolism, circulation, respiration, digestion, absorption, hepatic metabolism, renal excretion, thermoregulation, immune response, inflammation, acid-base balance, fluid and electrolyte balance, endocrine signaling, neurotransmission, blood sugar balance and protein synthesis) 2.4 Identify signs of normal vs abnormal function. 2.5 Relate system function to common clinical presentations (e.g., breathlessness, pain, fatigue).
3.0 Understand the mechanisms of health and disease.	3.1 Define pathology and pathophysiology. 3.2 Describe cellular adaptations (atrophy, hypertrophy, hyperplasia, metaplasia). 3.3 Differentiate reversible and irreversible cell injury. 3.4 Explain necrosis and its types. 3.5 Explain inflammation: • Causes • Acute vs chronic • Clinical signs and implications 3.6 Describe wound healing and factors affecting healing. 3.7 Explain hemodynamic disorders: • Edema • Thrombosis • Embolism • Shock 3.8 Explain fluid, electrolyte, and acid-base imbalances.

	3.9 Describe basic genetic and congenital disorders. 3.10 Explain immunopathology: • Hypersensitivity • Autoimmune disorders • Immunodeficiency 3.11 Explain neoplasia: • Benign vs malignant • Carcinogenesis • Warning signs of cancer 3.12 Explain metabolic disorders with emphasis on diabetes mellitus. 3.13 Relate disease mechanisms to observable patient signs and symptoms. 3.14 Identify red flag conditions requiring urgent referral.
4.0 Understand microbiology, immunity and infection control.	4.1 Define microbiology and describe its relevance in healthcare. 4.2 Identify major groups of microorganisms and describe the nature of their infections: • Bacteria • Viruses • Fungi • Parasites 4.3 Explain modes of transmission of infections. 4.4 Describe host defense mechanisms and immune response. 4.5 Describe the following and their components: Innate immunity, adaptive immunity. Passive immunity, active immunity.

	4.6 Describe the components and mechanism of cell-mediated immunity and humoral immunity 4.7 Explain factors influencing susceptibility to infection. 4.8 Identify common infections and their basic clinical features. 4.9 Explain principles of infection prevention and control. 4.10 Apply standard precautions in clinical and therapeutic settings. 4.11 Recognize risks of contamination in herbal and clinical practice. 4.12 Explain the role of natural antimicrobial agents and probiotics.
5.0 Understand biochemistry, nutrition and metabolism.	5.1 Define biochemistry and its relevance to health. 5.2 Explain energy production and metabolism (ATP, basic pathways). 5.3 Describe carbohydrates, proteins, and lipids: • Functions • Digestion • Absorption • Metabolism • Clinical relevance • Sources 5.4 Explain vitamins and minerals: • Functions • Deficiencies and excesses • Clinical implications • Sources 5.5 Explain hormonal regulation of metabolism. 5.6 Describe oxidative stress and the role of antioxidants.

	5.7 Define nutrition and explain its relevance to integrative health care 5.8 Explain principles of balanced nutrition. 5.9 Apply basic nutritional assessment methods (BMI, waist circumference, MUAC, diet recall etc.). 5.10 Relate nutrition to disease prevention and integrative care.
6.0 Understand pharmacology, therapeutics and clinical safety	6.1 Define pharmacology and key terminologies. 6.2 Explain basic pharmacokinetics (absorption, distribution, metabolism, excretion). 6.3 Explain pharmacodynamics (mechanism of drug action). 6.4 Identify major drug classes and their general uses. 6.5 Explain adverse drug reactions and toxicity. 6.6 Discuss herb-drug and supplement-drug interactions. 6.7 Explain safe principles of dosage and administration. 6.8 Identify populations requiring special caution (children, elderly, pregnancy). 6.9 Apply pharmacovigilance principles in practice. 6.10 Recognize unsafe practices and contraindications in integrative care.
7.0 Understand Emergency Response	7.1 Describe Vital Signs and their physiological significance 7.2 Describe the following vital signs, their physiological significance, methods of measurement, normal and abnormal values Pulse rate, Blood pressure, Breathing rate, Pain, Oxygen saturation, Respiratory rate, Blood glucose level 7.3Recognize warning signs of serious conditions:

	• Severe infection • Respiratory distress • Cardiac events • Neurological emergencies 7.3 Explain Basic life support, advanced life support, pediatric life support, geriatric life support 7.4 Describe the components, indications, protocols, guidelines and precautions applicable to delivering the following: Basic life support, advanced life support, pediatric life support, geriatric life support
8.0 Understand Patient assessment, communication, health promotion, and application of findings	8.1 Conduct a basic health history interview, including main complaint, symptom analysis, and relevant background. 8.2 Demonstrate respectful, professional patient communication. 8.3 Explain determinants of health and preventive health measures. 8.4 Develop and deliver basic health education talks for individuals or groups. 8.5 Integrate biomedical, nutrition, and clinical observation findings to inform safe practice. 8.6 Identify when referral is necessary and act appropriately.

COURSE TITLE	**INTRODUCTION TO PUBLIC HEALTH**
COUSRE CODE	**IPH 101**
DURATION	**45 HRS**
UNIT	**3.0**

GOAL:

This course introduces students to the principles and practice of public health, emphasizing health promotion, disease prevention, and community-level interventions relevant to Complementary and Integrative Healthcare (CIH).

GENERAL OBJECTIVE: On completion of the course, the student should be able to:

1.0 Understand the concept, history, and scope of public health.

2.0 Understand determinants of health and disease.

3.0 Understand epidemiology and its application.

4.0 Understand the role of health education and promotion.

5.0 Understand environmental and occupational health.

6.0 Understand primary health care and community health services.

7.0 Understand the role of CIH in public health.

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
	On completion of this course, the student be able to:
1.0 Understand the concept, history, and scope of public health	1.1 Define public health. 1.2 Explain the goals and functions of public health. 1.3 Discuss the history of public health and its evolution.
2.0 Understand determinants of health and disease	2.1 Explain biological, environmental, social, and cultural determinants of health. 2.2 Discuss health inequalities and their impact. 2.3 Explain the concept of risk factors and protective factors.
3.0 Understand epidemiology and its application	3.1 Define epidemiology. 3.2 Describe measures of disease frequency (incidence, prevalence, mortality). 3.3 Explain epidemiological methods (descriptive, analytical, experimental). 3.4 Apply epidemiology to understanding disease prevention and health trends.
4.0 Understand the role of health education and promotion	4.1 Define health education and health promotion. 4.2 Discuss communication methods for health promotion. 4.3 Explain the importance of lifestyle modification in disease prevention.
5.0 Understand environmental and occupational health	5.1 Explain the impact of water, sanitation, and waste management on health. 5.2 Discuss air, soil, and food pollution and their health consequences. 5.3 Explain occupational hazards and workplace health.

6.0 Understand primary health care and community health services	6.1 Define primary health care (PHC). 6.2 Explain principles of PHC. 6.3 Discuss community participation in health services. 6.4 Explain integration of CIH into primary health care.
7.0 Understand the role of CIH in public health	7.1 Discuss the contribution of phytotherapy, nutrition, chiropractic care, homeopathy, and magnet therapy to health promotion. 7.2 Explain the role of CIH in preventing non-communicable diseases. 7.3 Discuss CIH interventions in maternal, child, and community health.

COURSE TITLE: **SUPERVISED INDUSTRIAL WORK**

EXPERIENCE SCHEME

COURSE CODE: **SIWES 201**

DURATION: **240 HRS**

UNIT: **4.0**

GOAL: This course is designed to introduce the student to field practical's in industrial settings.

GENERAL OBJECTIVES: On completion of this course, the student should be able to

1.0 Know what is required of them in industrial settings

2.0 Know how to carry out simple responsibilities in industrial settings

COURSE TITLE	**CLINICAL EXAMINATION AND DIAGNOSTICS**
COUSRE CODE	**CLI 201**
DURATION	**45 HRS**
UNIT	**3.0**

GOAL:

This course equips students with the foundational knowledge and practical skills required for safe and structured clinical assessment within Complementary and Integrative Healthcare (CIH). It emphasizes systematic patient evaluation, clinical observation, basic diagnostic reasoning, and appropriate referral practices. Students will learn how to take a comprehensive patient history, perform basic physical examinations, interpret observable signs, and understand the role and limitations of laboratory and imaging investigations. The course prioritizes **clinical safety, professional boundaries, and responsible decision-making**, ensuring that students operate competently within their scope of practice. By the end of the course, students will be able to assess patients methodically, recognize patterns of illness, identify red flags, and communicate findings clearly and professionally.

GENERAL OBJECTIVE: On completion of the course, the student should be able to:

1. Understand the principles, scope, and ethical responsibilities of clinical examination in CIH practice.
2. Conduct structured patient history taking and basic physical examination.
3. Apply standard clinical examination techniques and interpret findings at a basic level.
4. Understand the purpose, indications, and limitations of laboratory and imaging investigations.
5. Recognize clinical red flags and medical emergencies requiring referral.
6. Apply basic clinical reasoning in assessing patient conditions.
7. Document findings and communicate effectively with patients and other healthcare professionals.
8. Practice safely within defined professional limits.

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
1.0 Understand the principles and ethics of clinical examination	On completion of this course, the student be able to: 1.1 Define clinical examination, diagnosis, assessment, and clinical impression. 1.2 Differentiate between biomedical diagnosis and functional/integrative assessment. 1.3 Discuss the scope of practice of CIH practitioners. 1.4 Explain ethical principles including consent, confidentiality, and professionalism. 1.5 Explain medico-legal implications of improper assessment or delayed referral. 1.6 Identify situations where examination should be limited or avoided. 1.7 Describe the importance of referral culture in integrative healthcare practice.
2.0 Know how to take structured patient history	2.1 Explain the importance of patient history in diagnosis. 2.2 Conduct a structured consultation using a standard framework: • Patient identification and rapport building • Chief complaint • History of presenting illness (onset, duration, progression, severity) • Red flag screening • Past medical and surgical history • Drug, herbal, and supplement history • Family history • Social and lifestyle history

	2.3 Apply symptom analysis techniques (e.g., location, quality, triggers, relieving factors). 2.4 Incorporate integrative assessment perspectives (nutrition, lifestyle, stress, environment). 2.5 Apply basic traditional questioning methods (where appropriate). 2.6 Identify inconsistencies or gaps in patient history. 2.7 Document patient history clearly and accurately.
3.0 Understand physical examination techniques and clinical signs	3.1 Explain and demonstrate the four basic examination techniques: • Inspection • Palpation • Percussion • Auscultation 3.2 Measure and interpret vital signs: • Pulse • Blood pressure • Respiratory rate • Temperature • Oxygen saturation 3.3 Use basic clinical instruments (thermometer, sphygmomanometer, stethoscope). 3.4 Identify and interpret basic clinical signs: • Pallor, jaundice, cyanosis • Edema • Dehydration • Abnormal breathing patterns • Pain responses

	3.5 Perform basic system-focused examinations: • Cardiovascular • Respiratory • Abdominal • Musculoskeletal • Neurological (basic level) 3.6 Interpret simple clinical findings and relate them to possible conditions.
	4.1 Identify the following investigations: • Full blood count • Blood glucose • Lipid profile • Renal function test • Liver function test • Urinalysis • Blood pressure • Electrolyte panel • Malaria test • Pulse oximetry • Hemoglobin A1c (HbA1c) 4.2 Explain the purpose and basic interpretation of these tests. 4.3 Describe imaging modalities and their indications: • X-ray • Ultrasound • CT scan • MRI
4.0 Understand the use and interpretation of laboratory and imaging investigations	4.4 Explain indications and limitations of laboratory and imaging investigations.

	4.5 Recognize when tests are necessary or unnecessary. 4.6 Identify situations requiring referral for diagnostic confirmation. 4.7 Avoid over-interpretation beyond scope of practice.
5.0 Apply Clinical reasoning and symptom-based assessment	5.1 Explain the concept of clinical reasoning. 5.2 Apply symptom clustering to patient complaints. 5.3 Differentiate functional disturbances from pathological conditions. 5.4 Assess common presentations: • Fever • Headache • Fatigue • Pain (general and localized) • Digestive disturbances • Breathlessness 5.5 Formulate basic clinical impressions. 5.6 Decide on appropriate next steps: • Monitor • Support • Refer 5.7 Recognize uncertainty and act cautiously.
6.0 Apply red flags, emergencies, and referral protocols	6.1 Define red flags and medical emergencies. 6.2 Identify critical warning signs: • Chest pain • Sudden weakness or paralysis • Severe abdominal pain • Difficulty breathing

	• High fever with systemic symptoms • Uncontrolled bleeding 6.3 Recognize signs of: • Cardiovascular emergencies • Neurological emergencies • Severe infections • Metabolic crises 6.4 Explain immediate actions required in emergencies. 6.5 Apply referral protocols effectively. 6.6 Understand limits of CIH intervention in acute conditions.
7.0 Understand documentation, professional communication and case management	7.1 Document clinical findings using SOAP format. 7.2 Prepare referral notes and case summaries. 7.3 Communicate clearly with patients and caregivers. 7.4 Communicate effectively with other healthcare professionals. 7.5 Maintain accurate and confidential patient records. 7.6 Demonstrate professional conduct in clinical interactions.

COURSE TITLE	**RESEARCH METHODOLOGY**
COUSRE CODE	**RES 101**
DURATION	**45 HRS**
UNIT	**3.0**

GOAL: This course is designed to equip the student with the knowledge and skills of research methodology to enable him/her to present research report.

GENERAL OBJECTIVES: At the end of this course the student should be able to:

1.0 Understand the concept, nature and importance of research.

2.0 Understand the concept of research methodology.

1.0 Know the methods of data collection

4.0 Understand methods of data analysis and presentation.

1.0 Understand the presentation of research report.

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
1.0 Understand the concept, nature and importance of research.	On completion of this course, the student should be able to: 1.1 Define research and explain its nature and importance. 1.2 Discuss various types of research (historical, experimental, descriptive, qualitative, and mixed methods). 1.3 Explain the role of research in CIH, clinical practice, and policy development.
2.0 Understand the concept of research methodology.	2.1 Define research methodology and distinguish it from research methods. 2.2 Explain the elements of a research design. 2.3 Enumerate the steps in the basic research process. 2.4 Discuss ethical considerations in research, including informed consent, confidentiality, and integrity.
3.0 Know the methods of data collection.	3.1 Define data and explain the difference between primary and secondary data. 3.2 Discuss qualitative data collection methods (observation, interviews, focus groups). 3.3 Discuss quantitative data collection methods (questionnaires, experiments, surveys). 3.4 Explain sampling and sampling techniques (probability and non-probability sampling).

4.0 Understand methods of data analysis and presentation.	4.1 Explain descriptive statistics (mean, median, mode, standard deviation, frequency distribution). 4.2 Discuss inferential statistics (parametric and non-parametric tests). 4.3 Explain qualitative data analysis techniques (thematic analysis, coding). 4.4 Demonstrate appropriate methods of presenting research findings (tables, charts, graphs, narrative).
5.0 Understand the presentation of research report.	5.1 Explain the general format of a research report: i. Preliminary pages (title page, acknowledgments, abstract, table of contents). ii. The main body (Chapters I–V: Introduction, Literature Review, Methodology, Results, Discussion/Conclusion). iii. References and appendices. 5.2 Discuss best practices for writing and presenting research work. 5.3 Explain plagiarism, referencing styles (APA, Vancouver, etc.), and academic integrity.

COURSE TITLE	**RESEARCH PROJECT**
COUSRE CODE	**RES 201**
DURATION	**45 HRS**
UNIT	**3**

GOALS: This course is designed to equip the student with the knowledge and ski to enable him/her carry out simple survey.

GENERAL OBJECTIVES: On completion of this course, the student should be able to:

1.0 Understand how to write and present a research project on their discipline-related topics.

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
1.0 Understand how to write and present a research project on related topics.	On completion of this course, the student should be able to: 1.1 Use his knowledge in basic research methods to carry out and write a research project in the following presentation: A. Preliminaries: ix. Title page x. Approval I Certification page xi. Dedication page. xii.Acknowledgement xiii. Table of Content xiv. List of Tables xv. List of Figures xvi. Abstract G. Chapter One: Introduction including; background of the study, statement of the problem, purpose (or objective) of the study, significance of the study, research questions and/ or hypothesis (ses), Delimitation of the study, definition of terms (if any), etc. H. Chapter Two: Literature Review. I. Chapter Three: Research Methodology. J. Chapter Four: Data Presentation and Analysis. K. Chapter Five: Summary, Findings, Discussion of findings, Conclusion, Implications and Recommendations, Limitations of the study (if any), Suggestions for further studies. L. References (APA format is recommended). M. Appendix

COURSE TITLE	**ETHICAL AND BUSINESS MANAGEMENT PRACTICES IN COMPLEMENTARY AND INTEGRATIVE HEALTHCARE**
COUSRE CODE	**CIH 201**
DURATION	**45 HRS**
UNIT	**3**

GOALS: This course is designed to equip the student with the knowledge and skills required for establishing and managing a professional Complementary and Integrative Healthcare (CIH). Emphasis is placed on ethical conduct, regulatory compliance, business design, financial management, and patient-centered professionalism in line with Nigerian laws and global best practices.

GENERAL OBJECTIVES: On completion of this course, the student should be able to:

1.0 Understand the principles of ethics in health care and their application to Complementary and Integrative healthcare.

2.0 Understand patient rights, autonomy, cultural and religious considerations in Complementary and Integrative healthcare.

3.0 Understand legal and regulatory frameworks guiding Complementary and Integrative healthcare in Nigeria.

4.0 Understand business design, types of business entities, and processes for establishing a Complementary and Integrative healthcare.

5.0 Understand financial management, taxation, and record-keeping requirements for small health businesses.

6.0 Understand marketing, branding, and professional reputation management in Complementary and Integrative healthcare.

7.0 Integrate ethical and business principles into sustainable Complementary and Integrative

healthcare.

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
	On completion of this course, the student be able to:
1.0 Understand the principles of ethics in health care and their application to CIH	1.1 Define ethics and medical ethics. 1.2 Discuss theories and principles of ethics (autonomy, beneficence, non-maleficence, justice). 1.3 Explain CIH-specific ethical issues such as consent, honesty, and confidentiality. 1.4 Describe codes of conduct for CIH practitioners.
2.0 Understand patient rights, autonomy, cultural and religious considerations in CIH practice	2.1 Define patient rights and autonomy in CIH. 2.2 Discuss respect for cultural and religious healing traditions. 2.3 Explain cultural competence and its relevance in Nigerian society.
3.0 Understand legal and regulatory frameworks guiding CIH in Nigeria	3.1 Identify relevant regulatory agencies (Federal Ministry of Health, Nigerian Council of Physicians of Natural Medicine, etc). 3.2 Describe licensing, certification, and accreditation requirements. 3.3 Discuss malpractice, liabilities, and penalties for misconduct. 3.4 Outline company and health practice laws relevant to CIH.

4.0 Understand business design, types of business entities, and processes for establishing a Complementary and Integrative healthcare	4.1 Differentiate between sole proprietorship, partnership, and limited liability company. 4.2 Discuss the pros and cons of each structure for CIH practices. 4.3 Outline the process of CAC registration for a health business. 4.4 Explain the importance of business plans and strategic planning. 4.5 Discuss organizational structure and hierarchy within a Complementary and Integrative healthcare.
5.0 Understand financial management, taxation, and record-keeping requirements for small health businesses	5.1 Identify sources of start-up capital. 5.2 Explain Nigerian tax obligations (e.g. VAT, PAYE, Company Income Tax). 5.3 Demonstrate preparation of basic financial statements. 5.4 Discuss cost control, pricing of services, and break-even analysis. 5.5 Explain the importance of proper record-keeping and accounting in health businesses.
6.0 Understand marketing, branding, and professional reputation management in CIH	6.1 Define marketing and branding in the health sector. 6.2 Discuss ethical marketing and patient outreach. 6.3 Explain digital platforms (social media, websites) and their role in CIH visibility. 6.4 Highlight the risks of false claims and unethical advertising. 6.5 Discuss strategies for building patient trust and long-term loyalty.

7.0 Integrate ethical and business principles into sustainable CIH practice	7.1 Develop a business and ethical code of conduct for a hypothetical CIH practice. 7.2 Present a model clinic design incorporating legal, ethical, and business requirements. 7.3 Evaluate case studies of ethical and unethical business practices in CIH.

COURSE TITLE	**HERBAL DRUG TECHNOLOGY**
COUSRE CODE	**HEM 101**
DURATION	**45 HRS**
UNIT	**3**

GOAL: This course is designed to familiarize the students with herbal sciences and herbal drug preparation

GENERAL OBJECTIVES: On completion of this course the student should be able to:

1. Understand Herbs as Raw Materials
2. Understand Biodynamic Agriculture
3. Understand Neutraceuticals
4. Understand Herb-Drug and Herb-Food Interactions
5. Understand Herbal Cosmetics
6. Understand Herbal Excipients
7. Understand Herbal Formulations
8. Understand Evaluation of Drugs
9. Understand Patenting and Regulatory Requirements of Natural Products
10. Understanding the Herbal Industry

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
	On completion of this course, the student be able to:
1.0 Understand Herbs as Raw Materials	1.1 Explain the concept of herb, phytotherapy, herbal product and herbal drug preparation 1.2 Describe different sources of herbs 1.3 Discuss selection, identification authentification of herbs 1.4 Discuss processing of herbal raw materials 1.5 Differentiate between allopathicc and herbal drugs
2.0 Understand Biodynamic Agriculture	2.1 Explain the concept of good agriculture practices 2.2 Describe basic principles of organic farming 2.3 Discuss Pest and pest management 2.4 Explain biopesticides and bioinsecticides
3.0 Understand Neutraceuticals	3.1 Describe Neutraceuticals 3.2 Explain growth, scope, market scenario, products available in the market 3.3 Explain the health benefits and role of neutraceuticals in various diseases 3.4 Discuss in detail; herbs used as neutraceuticals
4.0 Understand Herb-Drug and Herb-Food Interactions	4.1 Define Herb-Drug and Herb-Food interactions 4.2 Explain classifications and types of Herb-Drug and Herb-Food interactions 4.3 Explain the mechanisms and effects of interactions 4.4 Discuss the different drugs and their possible side effects and interactions
5.0 Understand Herbal Cosmetics	5.1 Define Herbal Cosmetics

	5.2 Describe the advantages and classification of herbal cosmetics 5.3 Describe the raw materials used in skin care products 5.4 Explain the excipents used in hair care products 5.5 List the raw materials used in oral care products
6.0 Understand Herbal Excipients	6.1 Define Natural Excipients 6.2 List the functions of Herbal Excipients 6.3 Explain the classification, advantages and disadvantages 6.4 Describe the significance of natural colourants, sweetners, flavours and perfumes 6.5 Briefly explain the concept of natural products used as binders, diluents, viscousity builders and disintegrants
7.0 Understand Herbal Formulations	7.1 Explain the concept of conventional and novel dosage forms 7.2 Explain different conventional solid, liquid and semisolid dosage forms 7.3 Describe the advantages, preparations and applications of different types of novel dosage forms
8.0 Understand Evaluation of Drugs	8.1 Describe the WHO and NAFDAC guidelines for the assessment of herbal drugs 8.2 Explain stability testing of herbal drugs 8.3 Describe the different methods for evaluating herbal drugs 8.4 Explain adulteration and explain its detection in herbal drugs
9.0 Understand Patenting and Regulatory Requirements of Natural Products	9.1 Explain the concept of intellectual property right and patent 9.2 Discuss farmers right, breeders right, related to natural products

	9.3 Explain bioprospecting and biopiracy 9.4 Explain different patenting aspects of traditional knowledge and natural products 9.5 Describe the case studies of Neem and Curcuma 9.6 Discuss ethical and legal considerations of herbal drug research and development
10.0 Understanding the Herbal Industry	10.1 Discuss present, scope and future prospects of herbal drug technology 10.2 Describe plant based industries in Nigeria 10.3 Discuss current market trends in herbal drug market

COURSE TITLE	**INTRODUCTION TO PHYTOTHERAPY**
COUSRE CODE	**HEM 102**
DURATION	**45 HRS**
UNIT	**3.0**

GOAL: This course is designed to a coherent introduction to the study and practice of phytotherapy, in particular as found within Africa.

GENERAL OBJECTIVES: On completion of the course this student should be able to:

1.0 Understand Phytotherapy

2.0 Understand History and Growth of Phytotherapy

3.0 Understand Cultivation and Harvesting of crops

4.0 Understand Metabolites

5.0 Understand Extraction Techniques of Herbs

6.0 Understand Medical Herbalism

7.0 Understand The Materia Medica

8.0 Understand Legislations and Ethics of Herbal Practice

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
	On completion of this course, the student be able to:
1.0 Understand Phytotherapy	1.1 Describe the structure and components of a plant cell 1.2 Describe the taxonomy of the plant kingdom 1.3 Discuss the binomial nomenclature of the plant kingdom 1.4 Define Herbs, Phytotherapy 1.5 Discuss scientific evidences available to support its practice 1.6 Discuss different forms of herbal products; Western Herbal Medicine; Traditional Chinese medicine; Ayurveda etc. 1.7 List the Universal Principles of Phytotherapy
2.0 Understand History and Growth of Phytotherapy	2.1 Describe the history of Phytotherapy from classical times to the Renaissance 2.2 Distinguish between the terms Phytotherapy and medicine 2.3 Explain the concept of irregular medicine and its relevance to phytotherapy and homeopathy 2.4 Describe eclecticism, physiomedicalism and naturopathic perspectives on health and illness 2.5 Discuss the state of Phytotherapy in the 21st century 2.6 Explain the concept of holism and reductionism
3.0 Understand Cultivation and Harvesting of crops	3.1 Define the following terminologies Crops Cultivation Propagation Harvesting Preservation Storage 3.2 Differentiate between Annual, Biennual and Perennial crops

	3.3 Discuss different techniques of crop cultivation, propagation, harvesting, preservation and storage of herbal crops
4.0 Understand Metabolites	4.1 Define metabolites, active ingredients 4.2 Differentiate between the different types of metabolites with relevant examples 4.3 Describe the classification of secondary metabolites with plant examples
5.0 Understand Extraction Techniques of Medicinal Plants	5.1 Define extraction. Discuss its importance in Phytotherapy 5.2 Discuss different methods of extraction such as Maceration, Infusion, Digestion, Decoction, Percolation, Hot Continuous Extraction, Aqueous Alcoholic Extraction etc. 5.3 Discuss Parameters for Selecting an Appropriate Extraction Method
6.0 Understand Medical Herbalism	6.1 Perform a review of phytotherapy in integrative healthcare settings 6.2 Discuss application of medical herbalism to enhance health as well as the treatment of disease 6.3 Explain the basic concepts of medical herbalism
7.0 Understand The Materia Medica	7.1 Define the Materia Medica and explain its relevance and use 7.2 Explain ways of understanding medicinal plants including taste, smell and touch, the role of pharmacology, actions, indications and dosage 7.3 Describe 50 commonly used herbs, active ingredients, basic formulation; simple methods of preparation and application.
8.0 Understand Legislations and Ethics of Herbal Practice	8.1 Discuss legislation affecting Phytotherapy in integrative healthcare 8.2 Discuss ethical issues in Phytotherapy in integrative healthcare

	8.3 Discuss the importance of Phytotherapy research and highlight its role in improving the state and nature in integrative healthcare

COURSE TITLE	**INTRODUCTION TO HEBAL LABORATORY TECHNOLOGY**
COUSRE CODE	**HEM 103**
DURATION	**45 HRS**
UNIT	**3.0**

GOAL: To equip students with foundational scientific knowledge, practical skills, and professional standards required for work in herbal laboratories, emphasizing safe handling, preparation, analysis, and quality assurance of herbal materials and products.

GENERAL OBJECTIVES: On completion of this course, the student should be able to;

1. Understand Herbal Laboratory Science.
2. Understand Laboratory Wares and Equipment.
3. Understand Laboratory Instruments and Machinery.
4. Understand Herbal Laboratory Technology and Processes.
5. Understand Sterilization, Disinfection, and Laboratory Safety.
6. Understand Quality Assurance and Regulatory Compliance.
7. Understand Phytochemical Analysis and Standardization in Herbal Laboratories.

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
1.0 Understand Herbal Laboratory Science	On completion of this course, the student be able to: 1.1 Define the term *laboratory* and describe its relevance in herbal science. 1.2 Identify and differentiate the various types of herbal laboratories (academic, research, manufacturing, and clinical). 1.3 Explain the role and functions of herbal laboratory services in research and product development. 1.4 State laboratory rules, ethics, and professional codes of conduct in herbal laboratories. 1.5 Describe and demonstrate correct collection, labeling, handling, and shipment of herbal specimens. 1.6 Identify commonly used reagents, solvents, and solutions in herbal laboratories. 1.7 Discuss important scientific theories, laws, and concepts relevant to laboratory practice. 1.8 Perform basic laboratory calculations (percentage yield, dilution, concentration, ratios). 1.9 Demonstrate standard record-keeping and documentation procedures in herbal laboratory operations.
2.0 Understand Laboratory Wares and Equipments	2.1 Identify various laboratory wares and equipment used in herbal laboratories. 2.2 Demonstrate correct usage and care of beakers, pipettes, flasks, funnels, grinders, and weighing scales. 2.3 Describe procedures for cleaning, calibration, and maintenance of laboratory wares and equipment.
3.0 Understand Laboratory Instruments and Machinery	3.1 Identify essential instruments and machinery used in herbal technology (Soxhlet apparatus, macerators, rotary evaporators, centrifuges, spectrophotometers, grinders, and pulverizers).

	3.2 Demonstrate basic operational procedures and maintenance of these instruments. 3.3 Explain the principles of extraction, evaporation, and concentration using these machines. 3.4 Apply laboratory safety measures while operating machinery and instruments.
4.0 Understand Herbal Laboratory Technology and Processes	4.1 Explain and differentiate between herbal extraction, filtration, and isolation processes. 4.2 Demonstrate extraction techniques such as maceration, percolation, Soxhlet extraction, and infusion. 4.3 Demonstrate filtration, separation, and clarification techniques. 4.4 Discuss and demonstrate concentration and evaporation methods. 4.5 Demonstrate drying and pulverization techniques. 4.6 Explain and practice storage and preservation methods for herbal materials. 4.7 Demonstrate analytic and testing techniques for herbal preparations. 4.8 Demonstrate formulation and dispensary techniques used in herbal product preparation. 4.9 Discuss dosage form standardization, potency testing, and stability assessment of herbal formulations.
5.0 Understand Sterilization and Disinfection and Laboratory Safety	5.1 Define sterilization and disinfection and explain their importance in herbal laboratories. 5.2 Identify and demonstrate physical and chemical sterilization methods (autoclaving, dry heat, chemical agents). 5.3 Explain how and why materials and surfaces are sterilized in herbal laboratories. 5.4 Describe procedures for disinfection and decontamination of laboratory waste.

	5.5 Demonstrate the use of personal protective equipment (PPE) and safe handling of hazardous substances.
6.0 Understand Quality Assurance and Regulatory Compliance	6.1 Define quality assurance and explain its role in herbal laboratory operations. 6.2 Discuss common types and causes of laboratory errors. 6.3 Describe the steps and structure of a quality assurance program. 6.4 Explain the difference between internal and external quality control. 6.5 Discuss Good Laboratory Practice (GLP) and Good Manufacturing Practice (GMP) principles. 6.6 Explain the roles of NAFDAC, WHO, and ISO standards in herbal product regulation. 6.7 Demonstrate understanding of laboratory audit, validation, and standard operating procedures (SOPs).
7.0 Understand Phytochemical Analysis and Standardization	7.1 Define phytochemistry and describe its importance in herbal laboratory science. 7.2 Identify primary and secondary plant metabolites (alkaloids, flavonoids, tannins, saponins, glycosides, etc.). 7.3 Demonstrate qualitative and quantitative phytochemical tests. 7.4 Explain standardization and its role in ensuring herbal product consistency and safety. 7.5 Discuss analytical techniques used in phytochemical testing (spectrophotometry, chromatography, microscopy). 7.6 Interpret basic analytical results and relate findings to herbal potency and quality.

COURSE TITLE	**PHARMACOGNOSY**
COUSRE CODE	**HEM 203**
DURATION	**45 HRS**
UNIT	**3.0**

GOAL: To equip students with comprehensive knowledge of the origin, classification, morphology, chemistry, and bioactivity of natural drugs, and to develop practical understanding of how pharmacognostic principles guide the identification, standardization, and therapeutic application of herbal materials.

GENERAL OBJECTIVES: On completion of the course this student should be able to:

1.0 Understand the principles and scope of Pharmacognosy.

2.0 Understand plant structure, tissue culture, and their roles in drug development.

3.0 Understand the nature and function of primary and secondary metabolites.

4.0 Understand bioactive compounds, their extraction, and pharmacological significance.

5.0 Understand the principles of standardization, dosage, and quality control in crude drugs.

6.0 Understand safety, toxicity, and therapeutic considerations in pharmacognosy.

7.0 Understand recent advances and applications of pharmacognosy in modern herbal science.

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
1.0 Understand the Principles and Scope of Pharmacognosy	On completion of this course, the student be able to: 1.1 Define Pharmacognosy and explain its scope, importance, and relationship to herbal phytotherapy and pharmaceutical sciences. 1.2 Describe the history and development of Pharmacognosy and its role in modern drug discovery. 1.3 Explain classifications of natural drugs: alphabetical, taxonomical, morphological, pharmacological, chemical, and chemotaxonomical. 1.4 Define crude drugs and explain their types, sources, and characteristics. 1.5 Describe morphological and microscopic characteristics of selected crude drugs. 1.6 Explain the chemical constituents of crude drugs and their role in medicinal activity. 1.7 Discuss the “Doctrine of Signatures” and its influence on historical plant selection. 1.8 List practical applications of Pharmacognosy in herbal, pharmaceutical, and nutraceutical industries.
2.0 Understand Plant Structure and Culture	2.1 Describe the structure and components of plant cells and tissues and their relevance to active compound formation. 2.2 Explain the concept and methods of plant tissue culture. 2.3 Discuss the steps of tissue culture: initiation, multiplication, rooting, and acclimatization. 2.4 Differentiate between callus culture, organ culture, and cell

	suspension culture. 2.5 Explain micropropagation, somatic embryogenesis, and transgenic plant production. 2.6 Discuss the role of tissue culture in secondary metabolite production and conservation of medicinal plants.
3.0 Understand Primary and Secondary Metabolites	3.1 Define metabolites and differentiate between primary and secondary metabolites. 3.2 Describe the biological roles and chemical nature of major primary metabolites (carbohydrates, proteins, lipids, nucleic acids, vitamins, and organic acids). 3.3 Discuss the structure, classification, and functions of key secondary metabolites (alkaloids, glycosides, tannins, flavonoids, terpenoids, saponins, phenolics, resins, and volatile oils). 3.4 Demonstrate basic phytochemical tests used for identifying these metabolite classes. 3.5 Relate secondary metabolites to their pharmacological and therapeutic applications.
4.0 Understand Bioactive Compounds and Their Pharmacological Significance	4.1 Define bioactive compounds and explain their importance in drug discovery and herbal therapeutics. 4.2 Describe sources of bioactive compounds and methods of extraction, isolation, and purification. 4.3 Identify major classes of bioactive compounds and their general pharmacological activities. 4.4 Discuss selected examples (50 key bioactive compounds) with emphasis on class, structure, source, method of extraction, pharmacological activity, and potential toxicity. 4.5 Correlate bioactive compound chemistry with herbal clinical effects.

5.0 Understand Standardization, Dosage, and Quality Control in Crude Drugs	5.1 Define standardization and quality assurance in pharmacognosy. 5.2 Explain the importance of purity, strength, and identity testing in herbal materials. 5.3 Discuss pharmacopeial parameters such as moisture content, ash value, extractive value, and volatile oil content. 5.4 Describe macroscopic, microscopic, and chromatographic methods used for identification and standardization. 5.5 Explain the relationship between bioactive content and therapeutic dosage. 5.6 Discuss WHO and pharmacopoeial standards (BHP, African Herbal Pharmacopeia, NAFDAC guidelines). 5.7 Demonstrate understanding of documentation and labeling standards for herbal raw materials.
6.0 Understand Safety, Toxicity, and Therapeutic Considerations	6.1 Explain the concepts of safety, toxicity, and therapeutic window in herbal pharmacology. 6.2 Describe common toxic plants, their bioactive constituents, and symptoms of poisoning. 6.3 Explain the influence of dosage, preparation, and formulation on safety and efficacy. 6.4 Discuss methods for evaluating acute and chronic toxicity of herbal preparations. 6.5 Highlight herb-drug interactions and contraindications relevant to pharmacognostic compounds.
7.0 Understand Advances and Applications in Pharmacognosy	

	7.1 Discuss the role of pharmacognosy in modern drug discovery and integrative healthcare. 7.2 Explain current trends in plant biotechnology and metabolomics. 7.3 Discuss genetically modified plants and biotechnological innovations for drug production. 7.4 Describe applications of pharmacognosy in the production of herbal cosmetics, nutraceuticals, and functional foods. 7.5 Evaluate recent research developments and publications in pharmacognosy and phytotherapy.

COURSE TITLE	**CULTIVATION AND PRESERVATION OF HERBAL DRUGS**
COUSRE CODE	**HEM 201**
DURATION	**45 HRS**
UNIT	**3.0**

GOAL: This course is designed to educate students on different approaches to cultivation and preservation of herbal drugs

GENERAL OBJECTIVES: On completion of the course this student should be able to:

1.0 Understand Fundamentals of Cultivation

2.0 Understand Collection, Processing and Storage of Crude drugs

3.0 Understand Plant growth regulators

4.0 Understand Polyploidy, Mutation and Hybridization

5.0 Understand Quality Control and Standardization

6.0 Understand Conservation

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
	On completion of this course, the student be able to:
1.0 Understand Fundamentals of Cultivation	1.1 Explain the concept of cultivation and describe its importance 1.2 Describe the different methods of cultivation of medicinal plants 1.3 Discuss the factors affecting cultivation e.g Soil, Altitude, temperature etc. 1.4 Explain Organic farming and discuss the importance of Good Agricultural Practices (GAP)
2.0 Understand Collection, Processing and Storage of Crude drugs	2.1 Explain factors that influence selection of medicinal plants for cultivate 2.2 Explain the concept of collection of medicinal plants 2.3 Differentiate between wild and cultivated collection 2.4 Describe the best methods for collection of different medicinal plants 2.5 Describe seasonal variations in collection of herbal drugs 2.6 Explain harvesting of medicinal plants 2.7 Discuss the WHO guidelines for harvesting of medicinal plants 2.8 Explain post harvest handling and its significance 2.9 Describe primary processing of medicinal plants and its importance 2.10 Explain the process and techniques of drying medicinal plants 2.11 Describe specific processing of medicinal plants 2.11 Discuss the different methods of storage and preservation of medicinal plants

	2.12 Explain contamination and adulteration of herbal drugs. Describe techniques to prevent contamination and adulteration of herbal drugs 2.13 Describe packaging and storage conditions for herbal drugs
3.0 Understand Plant Growth Regulators	3.1 Describe plant growth regulators and their importance 3.2 Discuss the chracteristics of plant growth regulators 3.3 Discuss different plant growth regulators and applications e.g Auxins, Gibberellins etc.
4.0 Understand Polyploidy, Mutation and Hybridization	4.1 Define the terminologies; Polyploidy, mutation and hybridization 4.2 List the types of genetic material variations 4.3 Discuss the advantages and disadvantages of mutation 4.4 List types of mutations and examples 4.5 List the types of polyploidy 4.6 List the common causes of polyploidy 4.7 Discuss the importance of polyploidy in preservation of medicinal plants 4.8 Explain Colchicine and how it contributes as the main polyploidy 4.9 List the types of hybridization 4.10 Discuss the advantages of hybridization 4.11 Mention common examples of hybridization practices
5.0 Understand Quality Control and Standardization	5.1 Explain the methods of performing pharmacognostic evaluation of herbal drugs 5.2 Describe the role of NAFDAC in the evaluation of herbal drugs 5.3 Highlight chemical and physical parameters for quality assurance in herbal drug evluation 5.4 Explain adulteration and describ the various methods of detecting adulteration of herbal drugs 5.5 Discuss the role of chromatography and Spectroscopy in Herbal Drug Analysis

6.0 Understand Conservation	6.1 Define conservation of medicinal plants 6.2 Discuss different techniques and strategies associated with conservation 6.3 Discuss the different factors that affect conservation of medicinal plants 6.4 Discuss the importance of conservation techniques in preservation of medicinal plants 6.5 Discuss common conservation practices in Nigeria 6.6 Discuss the different challenges in the conservation of endagered plants in Nigeria

COURSE TITLE	**HERBAL FORMULATIONS AND DISPENSARY**
COUSRE CODE	**HEM 202**
DURATION	**45 HRS**
UNIT	**3.0**

GOAL: To equip students with the theoretical knowledge and practical skills necessary for the safe preparation, formulation, storage, and dispensing of phytotherapy in accordance with scientific, ethical, and regulatory standards.

GENERAL OBJECTIVES: On completion of the course this student should be able to:

1. Understand the principles and scope of herbal pharmacy.
2. Develop core skills required for dispensary and handling of herbal products.
3. Understand the science and process of herbal formulations and product preparation.
4. Understand dosage calculations, pharmaceutical measurements, and record-keeping.
5. Understand quality assurance and Good Manufacturing Practice (GMP) in herbal production.
6. Understand the procedures and ethics of dispensing herbal products.
7. Understand regulatory and professional standards guiding herbal pharmacy practice.

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
	On completion of this course, the student be able to:
1.0 Understand Herbal Pharmacy	1.1 Define pharmacy and herbal pharmacy. 1.2 Discuss the history, scope, and evolution of herbal pharmacy. 1.3 Explain the role of herbal pharmacists and dispensers in healthcare systems. 1.4 Discuss the importance of pharmaceutical knowledge in herbal formulation and dispensing. 1.5 Compare herbal and conventional pharmacy practices. 1.6 Explain professional ethics, safety, and documentation standards in herbal pharmacy.
2.0 Understand Basic Skills in Herbal Pharmacy	2.1 Describe essential personal and technical skills for herbal dispensary practice (accuracy, reliability, safety, documentation). 2.2 Demonstrate the correct use of measuring, weighing, and labeling techniques. 2.3 Perform pharmaceutical calculations related to concentration, ratios, percentages, and dilutions. 2.4 Identify types of containers, labeling standards, and safe storage practices. 2.5 Discuss record-keeping, batch documentation, and labeling as part of dispensary management.
3.0 Understand Herbal Formulations and Production	3.1 Explain the science and principles of herbal formulation. 3.2 Describe various methods of extraction and their

	applications (maceration, percolation, infusion, decoction, Soxhlet, cold press). 3.3 Discuss techniques for producing tinctures, glycerites, syrups, powders, ointments, and capsules. 3.4 Explain the classification of herbal dosage forms (solid, liquid, semi-solid, traditional). 3.5 Discuss the role of excipients and stabilizers in herbal formulations. 3.6 Explain the concepts of shelf-life, potency, and stability. 3.7 Describe basic equipment used in production and their maintenance. 3.8 Discuss scale-up from small batch to larger formulations. 3.9 Explain Good Manufacturing Practice (GMP) principles and their relevance in herbal production.
4.0 Understand Dispensing	4.1 Define dose, dosage, and posology. 4.2 Explain factors influencing dosage in phytotherapy (age, weight, health status, preparation type). 4.3 Demonstrate practical dosage calculations for common formulations. 4.4 Prepare dose conversion tables between tinctures, infusions, and powders. 4.5 Discuss pediatric, adult, and geriatric dose variations. 4.6 Calculate dosage adjustments for concentration and potency differences.
5.0 Understand Quality Assurance and GMP	5.1 Define quality assurance and quality control in herbal pharmacy. 5.2 Describe the components of a quality assurance program (documentation, batch control, verification, SOPs). 5.3 Identify types and causes of formulation errors. 5.4 Discuss stability testing, microbial safety, and

	contamination control. 5.5 Explain internal and external quality control measures. 5.6 Describe the importance of packaging, labeling, and expiry validation in herbal formulations.
6.0 Understand Dispensing of Herbal Products	6.1 Define dispensing and describe its principles. 6.2 Outline the setup and workflow of a herbal dispensary. 6.3 Explain procedures for dispensing internal and external products. 6.4 Describe preparation and dispensing of the following: - Creams, ointments, lotions, liniments, poultices - Tinctures, syrups, linctuses, lozenges - Tablets, capsules, suppositories, and pessaries 6.5 Discuss sterilization, preservation, and stability of herbal preparations. 6.6 Explain record-keeping, inventory control, and labeling protocols. 6.7 Discuss communication with clients regarding dosage, usage, and contraindications.
7.0 Understand Regulations and Ethics in Herbal Formulation and Dispensing	7.1 Discuss local and international regulations governing herbal dispensary operations (WHO, NAFDAC, ECOWAS standards). 7.2 Review national and institutional guidelines for herbal formulation and dispensing in Nigeria. 7.3 Describe ethical principles in herbal pharmacy (transparency, patient safety, informed consent). 7.4 Explain documentation required for herbal product registration and labeling. 7.5 Highlight the importance of continuing professional development and accountability in herbal practice.

COURSE TITLE	**HERBAL MATERIA MEDICA AND THERAPEUTICS**
COUSRE CODE	**HEM 204**
DURATION	**45 HRS**
UNIT	**3.0**

GOAL: To equip the student with comprehensive knowledge of medicinal herbs, their actions on physiological systems, clinical applications, safety principles, and the foundational skills required for formulating and prescribing herbal products responsibly.

GENERAL OBJECTIVES: On completion of this course, the student will be able to:

1.0 Understand Herbal Materia Medica

2.0 Understand Herbal Therapeutics

3.0 Understand Herbal Safety and Toxicology

4.0 Understand Clinical Applications and Case Studies

5.0 Understand Herbal Dosage, Formulation, and Posology

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
1.0 Understand Herbal Materia Medica	On completion of this course, the student be able to: 1.1 Perform an in depth study of 50 core medical herbs on the basis of; Botanical identification Local and Latin names Parts used Phytochemical constituents Methods of preparation Traditional and modern therapeutic uses Clinical studies and evidence-based research 1.2 Compare indigenous African medicinal herbs with globally recognized materia medica. 1.3 Describe the principles of herbal energetics and their relevance to clinical application.
2.0 Understand Herbal Therapeutics	2.1 Discuss the following classification of herbs on the following systems based on therapeutic actions, applications and formulations across the following physiological systems: • Digestive system • Cardiovascular system

	• Respiratory system • Nervous system • Immune system • Endocrine and hormonal system • Musculoskeletal system • Renal and urinary system • Integumentary system • Detoxification and liver support **2.2** Explain how therapeutic actions guide herb selection in clinical practice. **2.3** Discuss polyherbal formulations for chronic and acute conditions.
3.0 Understand Herbal Safety and Toxicology	**3.1** Discuss professional safety standards in herbal practice. **3.2** Describe the principles of herbal safety, purity, quality control, and adulteration. **3.3** Define herbal toxicity and explain categories of toxic herbs. **3.4** Identify common herb-drug interactions with potential adverse effects. **3.5** Discuss safety considerations in special populations: • Pregnancy

	• Breastfeeding • Children • Elderly • Patients with chronic disorders **3.6** Recognize signs and symptoms of herbal toxicity. **3.7** Describe first aid and emergency steps for herbal poisoning. **3.8** Outline safe sourcing, storage, and dispensing practices.
4.0 Understand Clinical Applications and Case Studies	**4.1** Explain principles of herbal clinical practice and therapeutic assessment. **4.2** Conduct holistic assessments for herbal treatment planning. **4.3** Evaluate integration of phytotherapy with conventional care, including benefits and limitations. **4.4** Analyze multiple case studies across various health conditions. **4.5** Identify key clinical considerations such as contraindications, monitoring, and follow-up. **4.6** Demonstrate clinical reasoning in selecting herbs, dosages, and formulations.

5.0 Understand Herbal Dosage, Formulations and Posology	**5.1** Define dosage, posology, and formulation as applied to phytotherapy. **5.2** Describe key factors influencing dosage, including: • Age • Body weight • Chronicity of disease • Form of preparation • Herb potency and standardization **5.3** List measurement units commonly used in herbal dosing (ml, grams, drops, ratios). **5.4** Discuss dosage adjustment principles for: • Children • Pregnant and breastfeeding women • Elderly patients • Patients on pharmaceuticals **5.5** Identify and differentiate major forms of herbal preparations: • Infusions • Decoctions • Tinctures • Macerations • Powders • Capsules • Syrups

	• Liniments • Poultices • Herbal oils and ointments **5.6** Explain formulation principles, including herb combining strategies: • Synergists • Catalysts • Harmonizers • Correctives **5.7** Prepare basic herbal formulations and justify rationale for herb selection and dosage.

COURSE TITLE: **ANCILLARY THERAPIES RELATED TO PHYTOTHERAPY**

COURSE CODE: **HEM 205**

DURATION: **45 HRS**

UNIT: **3.0**

GOAL:

This course is designed to expose the student to a range of complementary and ancillary therapies that support and enhance the practice of phytotherapy. It emphasizes integrative approaches that strengthen the efficacy of herbal treatments, improve patient outcomes, and broaden the practitioner's scope of natural healing interventions.

GENERAL OBJECTIVES:

On completion of the course, the student should be able to:

1. Understand the concept and scope of ancillary therapies in relation to phytotherapy.
2. Understand nutritional therapy as an adjunct to phytotherapy.
3. Understand massage, hydrotherapy, and physical therapies in phytotherapy practice.
4. Understand detoxification and cleansing methods.
5. Understand aromatherapy, flower remedies, and allied vibrational therapies.
6. Understand energy medicine and its relevance to herbal care.
7. Understand the ethical, cultural, and safety considerations of using ancillary therapies alongside herbal phytotherapy.
8. Appreciate the integrative role of ancillary therapies in community and clinical practice.

GENERAL OBJECTIVES	PERFORMANCE OBJECTIVES
	On completion of this course, the student be able to:
1.0 Understand the Concept and Scope of Ancillary Therapies	1.1 Define ancillary therapies and their relationship to herbal practice. 1.2 Differentiate between primary and supportive therapeutic modalities. 1.3 Explain the historical role of ancillary therapies in African and global traditions. 1.4 Discuss the principles of integration between herbs and other therapeutic systems.
2.0 Understand Nutritional Therapy	2.1 Define nutritional therapy. 2.2 Explain the role of diet in disease prevention and recovery. 2.3 Identify nutritional deficiencies commonly addressed in herbal practice. 2.4 Discuss the synergistic use of diet and herbs in patient care.
3.0 Understand Massage, Hydrotherapy, and Physical Therapies	3.1 Describe massage therapy and hydrotherapy.

	3.2 Explain the physiological effects of touch and water therapies. 3.3 Identify conditions where massage or hydrotherapy may complement herbal treatments. 3.4 Demonstrate basic principles of relaxation and circulation-enhancing techniques.
4.0 Understand Detoxification and Cleansing Methods	4.1 Explain detoxification in traditional and modern contexts. 4.2 Describe herbal and non-herbal detoxification methods. 4.3 Explain the role of fasting, enemas, and cleansing diets. 4.4 Discuss potential risks and contraindications.
5.0 Understand Aromatherapy, Flower Remedies, and Allied Vibrational Therapies	5.1 Define aromatherapy and describe essential oils relevant to phytotherapy. 5.2 Explain the therapeutic use of flower essences. 5.3 Describe vibrational and subtle energy remedies in holistic health. 5.4 Discuss cultural acceptability and patient compliance with such remedies.

6.0 Understand Energy Medicine and Its Relevance to Herbal Care	6.1 Define energy medicine. 6.2 Outline the principles of acupuncture, acupressure, magnetic therapy, and Reiki. 6.3 Explain how energy therapies can complement herbal interventions. 6.4 Discuss scientific and traditional perspectives on energy healing.
7.0 Understand Ethical, Cultural, and Safety Considerations	7.1 Explain safety principles in integrating ancillary therapies. 7.2 Discuss cultural beliefs and their impact on therapy acceptance. 7.3 Identify boundaries of competence and referral in ancillary practices. 7.4 Discuss ethical dilemmas in recommending non-herbal therapies.
8.0 Appreciate the Integrative Role of Ancillary Therapies in Practice	8.1 Explain community-based applications of ancillary therapies. 8.2 Discuss the role of ancillary therapies in preventive care. 8.3 Demonstrate case study analysis integrating herbs with supportive therapies.

	8.4 Describe patient education strategies for safe, responsible use of ancillary therapies.