**Bayero University, Kano (BUK)**

**Pharmaceutical Sciences**

**Pharm. D (Doctor of Pharmacy) Programme**

**Additional Courses to CCMAS**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **100 LEVEL** | | | | | | | |
| Course Code | Course Title | Pre | Units | Status | LH | PH |  |
| BUK-CSC 101 | Introduction to Computer Science |  | 2 | C | 30 | - |  |
|  | **Total** |  | **2** |  |  |  |  |
| **600 Level** | | | | | | | |
| BUK-PCL 601 | Cosmeceuticals |  | 1 | C | 15 | - |  |
| BUK-PCH 610 | Drug Modeling |  | 1 | C | 15 | - |  |
|  | **Total** |  | **2** |  |  |  |  |

**BUK-CSC 101 Introduction to Computer Science (2 Units C: LH 30)**

**Senate-approved relevance**

Pharmacy education is to produce graduates knowledgeable in the practice of pharmacy. Computer is a fundamental tool in training of pharmacy students. Basic computer knowledge is required in the training of pharmacy students and its application is critical in many practical and theoretical courses.

**Overview**

Computer is a necessary tool in modern operation. Use of computer in the University training and its application in pharmacy practice is very key to professional output.

**Course objectives:**

This course exposes students to different types of computing system and their applications in modern development.

**Learning outcomes**

At the end of the course, students should be able to:

1. identify the different types of computer applications;

2. identify hard and software components as information processing units;

3. apply computer knowledge in data management;

4. operate various computer applications and softwares;

5. access research data bases and on-line resources

**Course contents**

Survey of computers and information processing and their roles in society. This course introduces a historical perspective of computing, hardware, software, information systems, and human resources and explores their integration and application in business and other segments of society. Students will be required to complete lab assignments using the PC’s operating system, and several commonly used applications, such as word processors, spreadsheets and graphics presentations applications. Internet and on-line resources, browsers and search engines.

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**BUK-PCL 601 Cosmeceuticals (1 Unit C: LH 15)**

**Senate-approved relevance**

Pharmacy education entails training of competent professionals capable of providing care with respect to effective and safe use of medicinal products. Cosmetics are of public interest and knowledge of cosmeceuticals is part of health pharmacy practice. Thus, would prepare students to address enormous challenges with the use of cosmetics.

**Overview**

Use of cosmetics products is on the increase especially among women in Nigeria. Some of the products contain ingredients that may be hazardous due to indiscriminate use. Cosmetic products are regulated and are of pharmaceutical relevance. Therefore, health education and promotion is central towards achieving rational use of cosmetic agents.

**Course objective:**

This course exposes students to information and skills in health promotion and education on the use of safe and effective cosmetic ingredients.

**Learning outcomes**

Students should be able to:

1. list various applications of cosmetic products;

2. differentiate between natural and synthetic cosmetic active ingredients;

3. enumerate sources and types of common excipients in cosmetic products;

3. describe short and long term side effects of common cosmetic ingredients;

4. list advantages and disadvantages of various types of cosmetic formulations;

5. describe anti-aging ingredients in cosmetics.

**Course contents**

Introduction; application areas and formulations of cosmetic products; active compounds used in cosmetic products; physical properties of surfactants used in cosmetic products; natural products used in cosmetics; fragrance compounds of natural origin; lipids in cosmetics; stability of cosmetic products; new cosmetic delivery systems, side effects and toxicity of compounds used in cosmetics; anti-aging cosmetics.

**BUK-PCH 601 Drug Modeling (1 Unit C: LH 15)**

**Senate-approved relevance**

Drug discovery and development is a core research area of pharmacy education and training. Drug modeling using computer-based techniques and bioinformatics is a new trend in drug discovery process. Knowledge of drug modeling provides critical thinking on how to address therapeutics challenges in patient care.

**Overview**

The global trend in drug discovery process is harnessing knowledge of bioinformatics to predict possible drug molecules of therapeutic interest. Drug modeling using computer is critical in advanced drug discovery research. Students will be exposed to different drug design models and appreciate how structural moieties are modified to alter pharmacological activities.

**Course Objectives**

This course is intended to expose students to hands-on computer-aided drug design using bioinformatics tools.

**Learning Outcomes**

At the end of the course, students should be able to:

1. Identify procedures employed in drug design;

2. describe the role of molecular modification in drug design;

3. design drugs using bioinformatics principles;

4. describe correlation between chemical structure and bioactivity;

5. modify chemical structure for better bioactivity outcome.

**Course Contents**

Introduction to drug design. Molecular modification and correlation of chemical structure and bioactivity; techniques used in rational drug design where molecular modeling and computational methodologies are employed; theories such as atomic, quantum and molecular mechanics, qualitative structure-activity relationships (QSAR) and bioinformatics.