INSTITUTE	**FACULTY OF PHARMACY**
PROGRAM	**BACHELOR OF PHARMACY**
SEMESTER	**2**
COURSE TITLE	**COMPUTER APPLICATIONS IN PHARMACY**
COURSE CODE	**13PH0204**
COURSE CREDITS	**4**

Objective:

1 This subject deals with the introduction Database, Database Management system,computer application in clinical studies and use of databases.

Course Outcomes: After completion of this course, student will be able to:

1 Know the various types of application of computers in pharmacy
2 Know the various types of databases
3 Know the various applications of databases in pharmacy

Pre-requisite of course: This subject deals with the introduction Database, Database Management system, computer application in clinical studies and use of databases.

Teaching and Examination Scheme

Theory Hours	Tutorial Hours	Practical Hours	ESE	IA	CSE	Viva	Term Work
3	0	2	75	15	10	35	15

DR. RAMESH BHANAJIBHAI PARMAR
Digitally signed by (Name of HOD)

DR. LALJI HAKUBHAI BALDANIYA
Digitally signed by (Name of Dean/ Principal)

Contents : Unit	Topics	Contact Hours
1	**Number system** Number system: Binary number system, Decimal number system, Octal number system, Hexadecimal number systems, conversion decimal to binary, binary to decimal, octal to binary etc, binary addition, binary subtraction – One's complement ,Two's complement method, binary multiplication, binary division Concept of Information Systems and Software : Information gathering, requirement and feasibility analysis, data flow diagrams, process specifications, input/output design, process life cycle, planning and managing the project, Web technologies: Introduction to HTML, XML,CSS and Programming languages, introduction to web servers and Server Products. Introduction to databases, MYSQL, MS ACCESS, Pharmacy Drug database, Application of computers in Pharmacy – Drug information storage and retrieval, Pharmacokinetics, Mathematical model in Drug design, Hospital and Clinical Pharmacy, Electronic Prescribing and discharge (EP) systems, barcode medicine identification and automated dispensing of drugs, mobile technology and adherence monitoring Diagnostic System, Lab-diagnostic System, Patient Monitoring System, Pharma Information System??, Bioinformatics: Introduction, Objective of Bioinformatics, Bioinformatics Databases, Concept of Bioinformatics, Impact of Bioinformatics in Vaccine Discovery??, Computers as data analysis in Preclinical development: Chromatographic data analysis(CDS), Laboratory Information management System (LIMS) and Text Information Management System(TIMS)	6
2	**Web technologies** Introduction to HTML, XML,CSS and Programming 6 languages, introduction to web servers and Server Products. Introduction to databases, MYSQL, MS ACCESS, Pharmacy Drug database	6
3	**Application of computers in Pharmacy** Drug information storage and 6 retrieval, Pharmacokinetics, Mathematical model in Drug design, Hospital and Clinical Pharmacy, Electronic Prescribing and discharge (EP) systems, barcode medicine identification and automated dispensing of drugs, mobile technology and adherence monitoring Diagnostic System, Lab-diagnostic System, Patient Monitoring System, Pharma Information System	6
4	**Bioinformatics** Introduction, Objective of Bioinformatics, Bioinformatics Databases, Concept of Bioinformatics, Impact of Bioinformatics in Vaccine Discovery	6
5	**Computers as data analysis in Preclinical development** Chromatographic data analysis(CDS), Laboratory Information management System (LIMS) and Text Information Management System(TIMS)	6
Total Hours		**30**

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Suggested List of Experiments:

Contents : Unit	Topics	Contact Hours
1	**Computer Applications in Pharmacy** Experiment-1, Experiment-2, Experiment-3, Experiment-4, Experiment-5, Experiment-6, Experiment-7, Experiment-8, Experiment-9, Experiment-10, Experiment-11, Experiment-12	60
Total Hours		**60**

Textbook :

1 Bioinformatics Concepts Skills and Applications 2Ed (Pb 2019): Concepts, Skills & Applications, Rastogi S. C., CBS, 2019

2 Computer Applications in Pharmaceutical Research and Development by Sean Ekins, BSP, Sean Ekins, BSP, 2017

References:

1 Computer Applications in Pharmacy, Computer Applications in Pharmacy, William E.Fassett, Dale b. Christensen, Philadelphia : Lea & Febiger,, 1986

2 Microsoft Access 2013 Plain and Simple by COUCH, ANDREW_x000D _, PHI Learning, Microsoft Access 2013 Plain and Simple by COUCH, ANDREW_x000D _, PHI Learning, COUCH, ANDREW_x000D, PHI Learning, 2020

Suggested Theory Distribution:

The suggested theory distribution as per Bloom's taxonomy is as follows. This distribution serves as guidelines for teachers and students to achieve effective teaching-learning process

Distribution of Theory for course delivery					
Remember / Knowledge	**Understand**	**Apply**	**Analyze**	**Evaluate**	**Higher order Thinking / Creative**
20.00	30.00	25.00	15.00	10.00	0.00

Instructional Method:

1 The course delivery method will depend upon the requirement of content and the need of students. The teacher in addition to the conventional teaching method by the blackboard may also use any tools such as demonstration, role play, quiz, brainstorming, MOOCs etc

2 The internal evaluation will be done based on continuous evaluation of students in the laboratory and classroom

3 Students will use supplementary resources such as online videos, NPTEL videos, MOOCs/ e-courses, virtual laboratories.

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