FIRST-YEAR OF BACHELOR OF SCIENCE CHEMISTRY INDIAN KNOWLEDGE SYSTEM (IKS) REVISED SYLLABUS ACCORDING TO CBCS NEP2020

COURSE TITLE: INTRODUCTION TO INDIAN MEDICINAL CHEMISTRY

SEMESTER-I

W.E.F. 2023-2024

Recommended by the Board of Studies in Chemistry
and
Approved by the Academic Council

Devrukh Shikshan Prasarak Mandal's
Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh. Tal. Sangameshwar, Dist. Ratnagiri-415804, Maharashtra, India

Academic Council Item No: _____

Name of the Implementing Institute	:	Nya. Tatyasaheb Athalye Arts, Ved. S. R. Sapre Commerce, and Vid. Dadasaheb Pitre Science College (Autonomous), Devrukh. Tal. Sangameshwar, Dist. Ratnagiri-415804,
Name of the Parent University	:	University of Mumbai
Name of the Programme	:	Bachelor of Science
Name of the Department	:	Chemistry
Name of the Class	:	First Year
Semester	:	First
No. of Credits	:	02
Title of the Course	:	Introduction to Indian Medicinal Chemistry
Course Code	:	CHIK101
Name of the Vertical in adherence to NEP 2020	:	Indian Knowledge System Courses
Eligibility for Admission	:	Any 12^{th} Pass seeking Admission to Degree Programme in adherence to Rules and Regulations of the University of Mumbai and Government of Maharashtra
Passing Marks	:	40%
Mode of Assessment	:	Formative and Summative
Level	:	UG
Pattern of Marks Distribution for TE and CIA	:	40:60
Status	:	NEP-CBCS
To be implemented from Academic Year	:	2023-2024
Ordinances /Regulations (if any)		

Syllabus for First Year of Bachelor of Science in Chemistry

(With effect from the academic year 2023-2024)

SEMESTER-I

Course Title: Introduction to Indian Medicinal Chemistry **No. of Credits - 02**

Type of Vertical: Indian Knowledge System Courses **COURSE CODE: CHIK101**

Learning Outcomes Based on BLOOM's Taxonomy:

After completing the course, the learner will be able to…		
Course Learning Outcome No.	Blooms Taxonomy	Course Learning Outcome
CLO-01	Comprehend	illustrate general stages in drug discovery and design.
CLO-02	Analyse	distinguish between leads, analogues and drugs.
CLO-03	Comprehend	Describe chemical constituents and medicinal uses of various medicinal plants.
CLO-04	Comprehend	explain sources and medicinal uses of various essential oils.

Syllabus for First Year of Bachelor of Science in Chemistry

(With effect from the academic year 2023-2024)

SEMESTER-I

Course Title: Introduction to Indian Medicinal Chemistry **No. of Credits - 02**

Type of Vertical: Indian Knowledge System Courses **COURSE CODE: CHIK101**

COURSE CONTENT			
Module No.	**Content**	**Credits**	**No. of Lectures**
1	**An introduction to drugs and their discovery** o Drug discovery and design: a historical outline- General stages in modern-day drug discovery and design o Leads and analogues: some desirable properties- Bioavailability, Solubility, Structure, Stability o Sources of leads and drugs: Ethnopharmaceutical sources, Plant sources, Marine sources, Microorganisms, Animal sources.	01	15
2	**Indian medicinal plants and essential oils** o Indian Medicinal Plants: Bhuiavali (Phyllanthus niruri), Hibiscus, Adulsa (Justicia adhatoda), Mothi-Ringnee (Solanum trilobatum), Tulasi, Brahmi, Aloe Vera, Neem plant and Sadafuli (Catharanthus roseus) (major chemical constituents and medicinal uses). o Essential Oils: Extraction by steam distillation – Source and medicinal uses of eucalyptus oil, Sandalwood oil and lemon grass oil.	01	15
	Total	02	30

Access to the Course

The course is available for all the students admitted for Bachelor of Science.

Forms of Assessment

The assessment of the course will be of Formative and Summative type. The formative assessment will be used for the Continuous Internal Evaluation whereas the summative assessment will be conducted at the end of the term. The weightage for formative and summative assessment will be 60:40. The detailed pattern is as given below.

Semester End Evaluation (30 Marks)
Question Paper Pattern
Time: 1.5 hours

Question No.	Unit/s	Question Pattern	Marks
Q.1	I	Descriptive Questions (Any 2 out of 4)	10
Q.2	II	Descriptive Questions (Any 2 out of 4)	10
Q.3	I & II	Descriptive Questions (Any 2 out of 4)	10
	Total		**30**

Internal evaluation (20 Marks)

Sr. No.	Description	Marks
1	One Classroom Tests	10
2	Project/ Viva/ Presentations/ Assignments	05
3	Attendance	05
	Total	**20**

Grading Scale

10 points grading scale will be used. The grading scale used is O to F. Grade O is the highest passing grade on the grading scale, and grade F is a fail. The Board of Examinations of the college reserves the right to change the grading scale.

References:

1. Gareth Thomas, Medicinal Chemistry: An Introduction, 2nd edition, John Wiley and Sons Ltd., The Atrium, Southern Gate, Chichester, West Sussex PO19 8SQ, England, 2007, ISBN 978-0-470-02598-7.
2. Burger's Medicinal Chemistry and Drug Discovery, 6th edition, Volume 1: Drug Discovery, edited by Donald J. Abraham, A John Wiley and Sons, Inc., Publication, 2003, ISBN 0-471-27090-3.
3. James A. Duke with Mary Jo Bogenschutz-Godwin, Judi duCellier, Peggy-Ann K. Duke, Handbook of Medicinal Herbs, 2nd edition, CRC Press LLC, 2002.
4. C. P. Khare, Indian Medicinal Plants- An Illustrated Dictionary, Springer Science & Business Media, LLC, 2007, ISBN: 978-0-387-70637-5 Springer-Verlag Berlin/Heidelberg.