Course-306: Practical

Course Code:	306
Course Title:	**Practical**
Total Credits :	06 Credits
Nature of Subject :	Practical only
Teaching per Week:	12 Hours per week per Semester
Minimum weeks per Semester:	15 weeks (Including class work, examination, preparation etc.)
Review/Revision Year:	June, 2021
Purpose of Course :	- Practical implementation of technologies covered as part of syllabus using required software and learning application areas. - Working with database using SQLite. - Understanding features of Python and its interaction with SQLite. - Understanding and learning programming concepts and various concepts of object oriented features using c++ programming language. - Understanding concepts of Data Structure and implementation of Stack (Pop, Push and Display) and Queue (Simple and Circular Queue) operations using any of the languages out of (C, C++ or Python). - Working with Web Design in direction of implementing various tools and scripts like HTML5, CSS, Bootstrap and JavaScript. - As an option to Web Design student can also opt Mobile computing and understand fundamentals of Android based technology, mobile application working and basic design concepts using Android studio.
Objective :	Objective of this course is to (i) Understand some important features of Python programming language. (ii) Learn Database interaction with Python using SQLite database. (iii) Understand essentials of Object oriented concepts using C++. (iv) Concepts of Data Structure and its implementation (v) Students will select any one option out of Web Design or Mobile computing to excel their knowledge in direction of Web Designing or Mobile application development.
Pre-requisite:	Knowledge of C programming, SQL, HTML, HTML5 and fundamentals of Python.
Course Outcome :	- At the end of this course, students will have hands on experience of writing and applying codes using Python and interact with SQLite. They will have concepts of taking data backups and dumping the database. - Students will have edge over concepts of object oriented programming, concepts of class, objects, encapsulation, polymorphism, Inheritence and implementation of it. - Students will also have an edge over concepts of data structures and their implementation (Stack and Queue concepts). Implementation of Data Structure will be open for the student to select any of the language out of C, C++ or Python. - Students can select any one option out of web design or mobile computing and gain edge over web designing using HTML5, CSS, Bootstrap and JavaScript or development of basic mobile app based on Android platform depending upon selected track.

Course Content:	1. Codes and database interaction using Python and SQLite based on Paper-303
	   Version recommended : SQLite : ver. 2.8 or above, Python: 3.6 or above
	     303: - Database handling based on SQLite (Unit-1 and Unit-2).
	- Python interaction with SQLite, csv, text files.
	   Data Visualisation using dataframe obtained from multi-column cleaned
	   labelled dataset (SQLite table, csv or txt file).
	2. Practical implementation of OOPs concepts based on Course-Paper-304 (Unit-1,

	2 and 3). 3. Practical implementation of Data Structure (Simple Stack operations (Push, Pop, Display) and Queue (Simple queue and circular queue)). 4. Practical implementation based on Course-Paper-305-01 <u>or</u> 305-02. (No specific Editor / IDE are recommended).
Teaching Methodology:	- Practical work - Lab sessions and hands on experience, Discussion, Self-Study - Students will create word document containing SQL based work including tables and queries and represent their work using presentation software at end of the semester.
Evaluation Method:	30% Internal assessment. 70% External assessment. [For Internal and External Examination Suggested distribution of question weight will be as per following Weightage distribution] : (i) Python and SQLite : 30% (ii) C++ : 20% (iii) Data Structure : 20% (iv) Question on Paper-305-01 <u>or</u> Paper-305-02 : 30%