SRM UNIVERSITY (Under section 3 of UGC Act 1956)	**FACULTY OF ENGINEERING AND TECHNOLOGY** **DEPARTMENT OF INFORMATION TECHNOLOGY** **COURSE PLAN - ODD SEMESTER** **(2015 -2016)**	Course : B.Tech Semester/Year : VI/III

SUBJECT CODE / NAME : **IT1140 PYTHON PROGRAMMING** L/T/P/C : **2/0/2/3**
STAFF NAME : Ms. Sornalakshmi.K, Ms. Kirthiga Devi
Perequisite for the course : Nil

PURPOSE

Python has evolved into a more popular and powerful open source programming tool. The purpose of this course is to introduce Python, a remarkably powerful dynamic programming language, to write code for a variety of application domains.

INSTRUCTIONAL OBJECTIVES

IO1. Able to setup Python working environment
IO2. Understand the object oriented features of Python
IO3. Able to confidently use Python to develop Network and Web applications
IO4. Learn to use Tkinter to develop GUI applications

STUDENT OUTCOMES:

This course presents the following outcomes as required by ABET

1. An ability to design, implement and evaluate a computer-based system, process, component, or program to meet desired needs. [Outcome c]
2. An ability to use current techniques, skills, and tools necessary for computing practice.[Outcome i]

SI. No	Unit	Topics / Sub – Topics	Hou	Instructional Objective	Stu Ou	Text Book / Ref. Book
1	I	Introduction to Python, Installation	1	IO1	C	R2 – chapters 1 and 2
2	I	Python Interpreter, Interpreter and its environment	1	IO1	C	R2 – chapter 3
3	II	The Python Language - *Lexical Structure, Data Types, Variables and other references, Expressions and Operators, Numeric, Sequence and Dictionary Operations, print Statement, Control Flow statements,*	1	IO2	C	R2 – chapter 4 (all topics except *set* operation)
4	II	Object Oriented Python – *Classes and Instances, Attributes and Methods, Inheritance*	1	IO2	C	R2 – chapter 5 (page 81-98)
5	II	Exceptions – *try, exception and raise*	1	IO2	C	R3 – chapter 33 page 835 - 850

6	II	Modules - *Module Objects, Module Loading*	1	IO2	c	R3 - chapter 22 page 543 - 549
7	II	Core Built-Ins – *os and sys modules*	1	IO2	c	R4 – chapter 2 (page 86 to 97) till "Communicating with shell commands"
8	II	String - *Methods of String Objects, string Module*	1	IO2	c	R3 – chapter 7 page 155 - 185
9	II	Regular Expressions and re Module (Methods: match, compile, search, findall, split, sub)	1	IO2	c	R4- chapter 19 page 1415 - 1425
10	II	Levels of Abstraction – Software Development Process	1	IO2	c	TB1 - chapter 2 page 11 - 13 (ref – PPT in piazza)
11	III	Files and Text Operations	1	IO2	i	R3 - chapter 9 page 229 - 236 (till storing and parsing Python objects in files, Refer extended modes from notes in piazza classroom) R4 - chapter 4 page 135 - 145
12	III	Persistant and Databases - *Python Database API (DBAPI)*	1	IO2	i	R4- chapter 17 page 1332 - 1339 (till "Running updates")

13	III	Time Operations – datetime module, Numeric Processing – random module	1	IO2	i	Refer notes fro piazza class room
13	III	Controlling Executions	1	IO2	i	R4 - chapter 2 page 86 - 97 (till "communicating with shell commands")
14	III	Threads and Processing - *Threading using Threading module. Function oriented threads.*	1	IO2	c	R4 - chapter 5 page 186 - 202
15	III	Testing debugging and optimization – doctest and pdb module basics	1	IO2		https://pymotw.com/2/pdb/ https://docs.python.org/3/library/pdb.html https://pymotw.com/2/doctest/ R2 – Chapter 18
15	IV	Client side Network Protocol Modules - *URL Access, HTTP and FTP Protocols*	2	IO3	i	R4 - chapter 13 page 853 - 860 page 997 - 998
16	IV	Socket and Server side Network Protocol Modules - *socket Module*	2	IO3	i	R4 - chapter 12 page 771 - 794 page 815 - 818
17	IV	CGI Scripting and Alternatives - *CGI in Python*	2	IO3	i	R4 - chapter 15 page 1125 - 1153
18	IV	email: Parsing and Composing Mail Content	2	IO3	i	R4 - chapter 13 page 922 - 926

19	V	Extending and Embedding Classic Python - *Extending Python with Python's C API*	1	IO4	i	R2 – Chapter 25 (ref – Notes in piazza classroom)
20	V	Extending and Embedding Jython - *Importing Java Packages in Jython, Embedding Jython in Java, Compiling Python into Java*	1	IO4	i	R2 – Chapter 26 (ref – Notes in piazza classroom)
21	V	Distributing Extensions and Programs - *Python's distutils, py2exe*	1	IO4	i	R2 – Chapter 27 https://docs.python.org/3/distutils/introduction.html http://www.py2exe.org/index.cgi/Tutorial
22	V	Tkinter GUI Programming - *tkinter Fundamentals, Widget Fundamentals, Commonly Used Simple Widgets, Container Widgets, Menus, Text Widget, Geometry Management, tkinter Events, Entry, List Boxes and Scrollbars, Buttons*	3	IO4	i	R4 358-383 395-399 449-451 522-527

Note: ***Page numbers mentioned here refer to the page number that is included at the bottom of each page inside the book of the mentioned editions.***

TEXT BOOK

TB1. Timothy A. Budd, "Exploring Python", Tata McGraw-Hill Edition 1, 2011.

REFERENCES

R1. Guido Van Rossum, Fred L. Drake, "Introduction to Python", Network Theory Limited, 2011
R2. Alex Martelli, "Python in a Nutshell", O'Reilly, 2nd Edition, 2006
R3. Mark Lutz, "Learning Python", Fourth Edition
R4. Mark Lutz, "Programming Python", Fourth Edition