

Department of Computer Science & Engineering National Institute of Technology Srinagar				
Course Title	Python Programming - Lab	Semester	5 th	
Department	Computer Science & Engineering	Course Code	CST311	
Credits	01	L	T	P
Course Type	Lab	0	0	2
Course Objectives				
<ul style="list-style-type: none"> To learn Syntax, Semantics and create Functions and to handle strings and files in Python. To understand Lists, Dictionaries, and Regular Expressions in Python. To implement OOP concepts in Python. To build web services and Introduction to Network and Database Programming in Python. 				
Learning Outcomes				
<p>The students should be able to:</p> <ul style="list-style-type: none"> Understand Python syntax and semantics and be fluent in the use of Python flow control and functions. Demonstrate proficiency in handling Strings and File Systems. Implement Python Programs using core data structures like Lists, Dictionaries and use Regular Expressions. Interpret the concepts of Object-Oriented Programming as used in Python. Implement exemplary applications related to Network Programming, Web Services and Databases in Python. 				
Course Synopsis				
Introduction to Python Programming; Building blocks of a python program: Variables, expressions and statements; Functions; Strings; Files; Lists; Dictionaries; Tuples; Regular expressions; Networked Programs; Unix Web Services; OOP; Using Databases				
Course Outline / Content				
Unit	Topics	Week		
1.	Implement a sequential search	1		
2.	Create a calculator program	1		
3.	Explore string functions	1		
4.	Implement Selection Sort	1		
5.	Implement Stack	1		
6.	Read and write into a file	1		
7.	Demonstrate usage of basic regular expression	1		
8.	Demonstrate use of advanced regular expressions for data validation.	1		
9.	Demonstrate use of List	1		
10.	Demonstrate use of Dictionaries	1		
11.	Create Comma Separate Files (CSV), Load CSV files into internal Data Structure	1		
12.	Write script to work like a SQL SELECT statement for internal Data Structure made in earlier exercise	1		
13.	Write script to work like a SQL Inner Join for an internal Data Structure made in earlier exercise	1		
Text Books				
1.	Charles R. Severance, "Python for Everybody: Exploring Data Using Python 3",			

	1st Edition, CreateSpace Independent Publishing Platform, 2016. (http://do1.drchuck.com/pythonlearn/EN_us/pythonlearn.pdf) (Chapters 1 – 13, 15)
2.	Allen B. Downey, "Think Python: How to Think Like a Computer Scientist", 2ndEdition, Green Tea Press, 2015. (http://greenteapress.com/thinkpython2/thinkpython2.pdf) (Chapters 15, 16, 17)
References	
1.	Charles Dierbach, "Introduction to Computer Science Using Python", 1st Edition, Wiley India Pvt Ltd. ISBN-13: 978-8126556014
2.	Mark Lutz, "Programming Python", 4th Edition, O'Reilly Media, 2011. ISBN-13: 978-9350232873
3.	Wesley J Chun, "Core Python Applications Programming", 3rdEdition, Pearson Education India, 2015. ISBN-13: 978-9332555365
4.	Roberto Tamassia, Michael H Goldwasser, Michael T Goodrich, "Data Structures and Algorithms in Python", 1stEdition, Wiley India Pvt Ltd, 2016. ISBN-13: 978- 8126562176
5.	Roberto Tamassia, Michael H Goldwasser, Michael T Goodrich, "Data Structures and Algorithms in Python", 1stEdition, Wiley India Pvt Ltd, 2016. ISBN-13: 978- 8126562176