

B.Tech 2nd Year Common Courses

(Effective from session 2023-24)

- BCC301 / BCC401/ BCC301H / BCC401H: Cyber Security
- BCC302 / BCC402/ BCC302H / BCC402H : Python programming

<u>BCC301 / BCC401/ BCC301H / BCC401H:</u>		
CYBER SECURITY		
Course Outcome (CO)	Bloom's Knowledge Level (KL)	
At the end of course , the student will be able to		
CO 1	Understand the basic concepts of cyber security and cybercrimes.	K ₁ , K ₂
CO 2	Understand the security policies and cyber laws.	K ₁ , K ₂
CO 3	Understand the tools and methods used in cyber crime	K ₂
CO 4	Understand the concepts of cyber forensics	K ₁ , K ₂
CO 5	Understand the cyber security policies and cyber laws	K ₂
DETAILED SYLLABUS		
Unit	Topic	Lecture
I	INTRODUCTION TO CYBER CRIME : Cybercrime- Definition and Origins of the word Cybercrime and Information Security, Who are Cybercriminals? Classifications of Cybercrimes, A Global Perspective on Cybercrimes, Cybercrime Era: Survival Mantra for the Netizens. Cyber offenses: How Criminals Plan the Attacks, Social Engineering, Cyber stalking, Cybercafe and Cybercrimes, Botnets: The Fuel for Cybercrime, Attack Vector.	04
II	CYBER CRIME : Mobile and Wireless Devices-Introduction, Proliferation of Mobile and Wireless Devices, Trends in Mobility, Credit Card Frauds in Mobile and Wireless Computing Era, Security Challenges Posed by Mobile Devices, Registry Settings for Mobile Devices, Authentication Service Security, Attacks on Mobile/Cell Phones, Mobile Devices: Security Implications for organizations, Organizational Measures for Handling Mobile, Organizational Security Policies and Measures in Mobile Computing Era.	04
III	TOOLS AND METHODS USED IN CYBERCRIME : Introduction, Proxy Servers and Anonymizers, Phishing, Password Cracking, Keyloggers and Spywares, Virus and Worms, Trojan-horses and Backdoors, Steganography, DoS and DDoS At-tacks, SQL Injection, Buffer Overflow, Attacks on Wireless Networks. Phishing and Identity Theft: Introduction to Phishing, Identity Theft (ID Theft).	04
IV	UNDERSTANDING COMPUTER FORENSICS: Introduction, Digital Forensics Science, The Need for Computer Forensics, Cyber forensics and Digital Evidence, Forensics Analysis of E-Mail, Digital Forensics Life Cycle, Chain of Custody Concept, Network Forensics, Approaching a Computer Forensics Investigation. Forensics and Social Networking Sites: The Security/Privacy Threats, Challenges in Computer Forensics.	04
V	INTRODUCTION TO SECURITY POLICIES AND CYBER LAWS : Need for An Information Security Policy, Introduction to Indian Cyber Law, Objective and Scope of the Digital Personal Data Protection Act 2023, Intellectual Property Issues, Overview of Intellectual Property Related	04

Text books:

1. Sunit Belapure and Nina Godbole, "Cyber Security: Understanding Cyber Crimes, Computer Forensics And Legal Perspectives", Wiley India Pvt Ltd, ISBN: 978-81- 265-21791, Publish Date 2013.
2. Basta, Basta, Brown, Kumar, Cyber Security and Cyber Laws, 1st edition , Cengage Learning publication
3. Dr. Surya PrakashTripathi, RitendraGoyal, Praveen Kumar Shukla, KLSI. "Introduction to information security and cyber laws". Dreamtech Press. ISBN: 9789351194736, 2015.
4. Cyber Security and Date Privacy by Krishan Kumar Goyal , Amit Garg , Saurabh Singhal , HP HAMILTON LIMITED Publication, ISBN-13-978-1913936020
5. Thomas J. Mowbray, "Cybersecurity: Managing Systems, Conducting Testing
6. Investigating Intrusions", Copyright © 2014 by John Wiley & Sons, Inc, ISBN: 978 - 1-118 -84965 -1.
7. James Graham, Ryan Olson, Rick Howard, "Cyber Security Essentials", CRC Press, 15-Dec 2010.
8. Anti- Hacker Tool Kit (Indian Edition) by Mike Shema, McGraw-Hill Publication.

BCC302 / BCC402/ BCC302H / BCC402H :**PYTHON PROGRAMMING****Course Outcome (CO)****Bloom's Knowledge Level (KL)****At the end of course , the student will be able to understand**

CO 1	Interpret the fundamental Python syntax and semantics and be fluent in the use of Python control flow statements.	K₁, K₂
CO 2	Express proficiency in the handling of strings and functions	K₁, K₂
CO 3	Determine the methods to create and manipulate Python programs by utilizing the data structures like lists, dictionaries, tuples and sets.	K₃
CO 4	Identify the commonly used operations involving file systems and regular expressions.	K₁, K₂
CO 5	Articulate the Object-Oriented Programming concepts such as encapsulation, inheritance and polymorphism as used in Python	K₂, K₃

DETAILED SYLLABUS

Unit	Topic	Lecture
I	Introduction to Python: Python variables, Python basic Operators, Understanding python blocks. Python Data Types, Declaring and using Numeric data types: int, float etc.	03
II	Python Program Flow Control Conditional blocks: if, else and else if, Simple for loops in python, For loop using ranges, string, list and dictionaries. Use of while loops in python, Loop manipulation using pass, continue, break and else. Programming using Python conditional and loop blocks.	05
III	Python Complex data types: Using string data type and string operations, Defining list and list slicing, Use of Tuple data type. String, List and Dictionary, Manipulations Building blocks of python programs, string manipulation methods, List manipulation. Dictionary manipulation, Programming using string, list and dictionary in-built functions. Python Functions, Organizing python codes using functions.	04
IV	Python File Operations: Reading files, Writing files in python, Understanding read functions, read(), readline(), readlines(). Understanding write functions, write() and writelines() Manipulating file pointer using seek Programming, using file operations.	04
V	Python packages: Simple programs using the built-in functions of packages matplotlib, numpy, pandas etc. GUI Programming: Tkinter introduction, Tkinter and PythonProgramming, Tk Widgets, Tkinter examples. Python programming with IDE.	04

Text books:

1. Wesley J. Chun, "Core Python Applications Programming", 3rd Edition , Pearson Education, 2016
2. Lambert, Fundamentals of Python: First Programs with MindTap, 2nd 1st edition , Cengage Learning publication
3. Charles Dierbach, "Introduction to Computer Science using Python", Wiley, 2015
4. Jeeva Jose &P.SojanLal, "Introduction to Computing and Problem Solving with PYTHON", Khanna Publishers, New Delhi, 2016
5. Downey, A. et al., "How to think like a Computer Scientist: Learning with Python", John Wiley, 2015
6. Mark Lutz, "Learning Python", 5th edition, Orelly Publication, 2013, ISBN 978- 1449355739
7. John Zelle, "Python Programming: An Introduction to Computer Science", Second edition, Course Technology Cengage Learning Publications, 2013, ISBN 978- 1590282410
8. Michel Dawson, "Python Programming for Absolute Beginners" , Third Edition, Course Technology Cengage Learning Publications, 2013, ISBN 978-1435455009
9. David Beazley, Brian Jones., "Python Cookbook", Third Edition, Orelly Publication, 2013, ISBN 978-1449340377