

VIVEKANANDHA

COLLEGE OF ARTS AND SCIENCES FOR WOMEN
ELAYAMPALAYAM, TIRUCHENGODE (Tk.), NAMAKKAL (Dt.).

(An ISO 9001 : 2008 Institutions Affiliated to Periyar University,
Approved by AICTE & Re-accredited with 'A+' Grade by
NAAC) Recognized under section 2(f) & 12(b) of UGC Act,
1956



PG & RESEARCH DEPARTMENT OF
COMPUTER SCIENCE AND APPLICATIONS

B.Sc., CYBER SECURITY

SYLLABUS & REGULATIONS

FOR CANDIDATES ADMITTED FROM 2023 - 2024
ONWARDS UNDER AUTONOMOUS & CBCS & OBE PATTERN

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VIVEKANANDHA EDUCATIONAL INSTITUTIONS
Angammal Educational Trust
Elayampalayam, Tiruchengode (Tk.), Namakkal (Dt.)

**VIVEKANANDHA COLLEGE OF ARTS AND SCIENCES FOR
WOMEN(AUTONOMOUS)**

B.Sc., in Cyber Security

(BACHALOR OF SCIENCE IN CYBER SECURITY)

(Candidates admitted from 2023-2024 onwards)

REGULATIONS

I. SCOPE OF THE PROGRAMME

Bachelor of Cyber Security can be considered to be one of the most prominent UG level programs in our country. This program mainly deals with the development of Computer Science for the purpose of updating computer programming languages. Cyber Security combines the magic of programming, mathematics and business. The course has a time period of 3 years with 6 semesters.

II. SALIENT FEATURES

- ❖ Regular conduct of guest lectures and seminars
- ❖ Campus recruitment
- ❖ Provides facilities such as Internet Access and In-House Library
- ❖ Provides Career Guidance for Post Graduate Courses like M.Sc, and the Certifications in programming languages
- ❖ Conduct of Personality Development Program
- ❖ Visiting Faculties from Industries

III. OBJECTIVES OF THE PROGRAMME

- ❖ Train graduates to perform and conduct data-driven investigations by managing and visualizing all types of data.
- ❖ Understand the concept and develop an in-depth understanding of cyber security and data analytics.
- ❖ To analyze quantitative and qualitative data, identify effective patterns and predicts upcoming trends.
- ❖ Teach advanced techniques and procedures in obtaining actionable or meaningful insights from raw data sets.
- ❖ Extract meaningful insights and useful information to businesses to strategize and generate more revenues.
- ❖ Incorporate with advanced cyber security fields and their applications to deliver solutions.

IV. ELIGIBILITY FOR ADMISSION

A Candidates seeking admission to the first year Degree course (B.Sc. Cyber Security) shall be required to have passed Higher Secondary Examination with Mathematics or Computer Science) as one of the subject under Higher Secondary Board of Examination, conducted by the Government of Tamilnadu or an examination accepted as equivalent thereto by the syndicate, subject to such conditions as may be prescribed thereto are permitted to appear and qualify for the B.Sc. Cyber Security Degree Examination of Periyar University after a course of study of three academic years.

V. DURATION OF THE PROGRAMME

- ❖ The course shall extend over a period of three academic years consisting of six semesters. Each academic year will be divided into two semesters. The First semester will consist of the period from July to November and the Second semester from December to April.
- ❖ The subjects of the study shall be in accordance with the syllabus prescribed from time to time by the Board of Studies of Vivekanandha College of Arts and Sciences for Women with the approval of Periyar University.

VI. CONTINUOUS INTERNAL ASSESSMENT (CIA)

The performance of the students will be assessed continuously and the Internal Assessment

Marks FOR THEORY PAPERS will be as under:

1	Average of Two Tests	-	05
2	Model Exam	-	10
3	Assignment	-	05
4	Attendance	-	05
Total			25

Assessment Marks FOR PRACTICAL PAPERS will be as under:

1	Model Exam	-	20
2	Observation Note	-	10
3	Attendance	-	10
Total			40

PASSING MINIMUM - EXTERNAL

THEORY	In the End Semester Examinations, the passing minimum shall be 40% out of 75 Marks. (30 Marks)
PRACTICAL / MAJOR PROJECT	In the End Semester Examinations, the passing minimum shall be 40% out of 60 Marks. (24 Marks)

VII. ELIGIBILITY FOR EXAMINATION

A candidate will be permitted to appear for the University Examination only on learning 75 % of attendance and only when her conduct has been satisfactory. It shall be open to grant exemption to a candidate for valid reasons subject to conditions prescribed.

VIII. DISTRIBUTION OF MARKS FOR ATTENDANCE

ATTENDANCE PERCENTAGE	MARKS	
	THEORY	PRACTICAL
75-80	1	2
81-85	2	4
86-90	3	6
91-95	4	8
96-100	5	10

IX. CLASSIFICATION OF SUCCESSFUL CANDIDATES

Successful candidates passing the Examination of Core Courses (Main & Allied Subjects) & Securing Marks.

- a) 75% and above shall be declared to have passed the examination in First Class with Distinction provided they pass all the examinations prescribed for the course at first appearance itself.
- b) 60% and above but below 75% shall be declared to have passed the Examinations in First Class.
- c) 50% & above but below 60% shall be declared to have passed the examinations in Second Class.
- d) All the remaining successful candidates shall be declared to have passed the examinations in Third Class.
- e) Candidates who pass all the examinations prescribed for the course at the First appearance itself and within a period of three Consecutive Academic years from the year of admission only will be eligible for University Rank.

X. ELIGIBILITY FOR AWARD OF THE DEGREE

A candidate shall be eligible for the award of the Degree only if she has undergone the above Degree for a period of not less than Three Academic years comprising of six semesters and passed the Examinations prescribed and fulfilled such conditions has have been prescribed therefore.

XI. PROCEDURE IN THE EVENT OF FAILURE

If a candidate fails in a particular subject, she may reappear for the university examination in the concerned subject in subsequent semesters and shall pass the examination.

XII. COMMENCEMENT OF REGULATIONS

These regulations shall take effect from the academic year 2022-2023 (i.e.,) for the students who are to be admitted to the First year of the course during the Academic year 2022- 23 and thereafter.

XIII. TRANSITORY PROVISIONS

Candidates who were admitted to the UG course of study before 2018-2019 shall be permitted to appear for the examinations under those regulations for the period of Three years ie., up to and inclusive of the Examinations of 2021-2022. Thereafter, they will be permitted to appear for the examinations only under the regulations then in force.

XIV. EVALUATION OF EXTERNAL EXAMINATIONS (EE)

<u>QUESTION PAPER PATTERN – THEORY</u>	
Time duration: 3 Hours	
Max. Marks: 75	
PART- A: (20 x 1= 20)	Answer all the Questions Four Questions from each Unit
PART- B: (5 x 5 = 25)	Answer all the questions One Question from each Unit (Either or Type)
PART- C: (3 x 10 = 30)	Answer any THREE of the questions One Question from each Unit (3 Out of 5)
In The End Semester Examinations, The Passing Minimum Shall Be 40% Out of 75 Marks. (30 Marks)	

<u>QUESTION PAPER PATTERN – PRACTICAL</u>	
Time duration: 3 Hours	
Max. Marks: 60	
1. One compulsory question from the given list of objectives	30 Marks
2. One either/or type question from the given list of objectives	30 Marks
IN THE END SEMESTER EXAMINATIONS, THE PASSING MINIMUM SHALL BE 40% OUT OF 60MARKS. (24 MARKS)	

B.Sc.. CYBER SECURITY**CURRICULUM ACADEMIC YEAR 2023 – 2024****COURSE PATTERN AND SCHEME OF EXAMINATIONS****UNDER AUTONOMOUS, CBCS & OBE PATTERN****FOR THE CANDIDATES ADMITTED FROM THE YEAR 2023 – 2024 ONWARDS****SEMESTER: I & II**

SEM	PART	COURSE CODE	COURSE TITLE	Hrs	CRE DIT	MARKS		
						CIA	EE	TOT
I	I	23U1LT01	Foundation Tamil – I	5	3	25	75	100
	II	23U1LE01	Communicative English – I	4	3	25	75	100
	III	23U1CYC01	Problem Solving and Python Programming	4	4	25	75	100
	III	23U1CYC02	Cyber Security	4	3	25	75	100
	III	23U1MAGE03	Discrete Mathematics	4	3	25	75	100
	III	23U1CYCP01	Problem Solving and Python Programming Lab	3	2	40	60	100
	IV	23U1ENAC01	Soft skill for effective communication -I	2	2	25	75	100
	IV	23U1VE01	Value Education(Manavazhakkalai Yoga)	2	2	25	75	100
	Total				28	22	215	585
II	I	23U2LT02	Foundation Tamil – II	5	3	25	75	100
	II	23U2LE02	Communicative English – II	4	3	25	75	100
	III	23U2CYC03	Introduction to Java Programming	4	4	25	75	100
	III	23U2CYCP02	Java Programming Lab	3	2	40	60	100
	III	23U2CYC04	Mobile and Web Application Security	4	3	25	75	100
	III	23U2MAGE07	Operations Research	4	3	25	75	100
	IV	23U2ENAC02	Soft skill for effective communication- II	2	2	25	75	100
	IV		Environmental Studies	2	2	25	75	100
	Total				28	22	215	585

SEMETER: III & IV

SEM	Part	Course Code	COURSE TITLE	Hrs	CRE DIT	MARKS		
						CIA	EE	TOT
III	III	23U3CYC05	Graph Theory and its Applications	5	4	25	75	100
	III	23U3CYCP03	Graph Theory and its Applications Lab	4	2	40	60	100
	III	23U3CYC06	Advanced Database Systems	5	4	25	75	100
	III	23U3CYCP04	Advanced Database Systems Lab	4	2	40	60	100
	III	23U3CYC07	Information Security and Audit Monitoring	4	4	25	75	100
	III		Statistical Methods and Their Applications-I	4	4	25	75	100
	IV		SBEC-I	2	2	25	75	100
	IV		NMEC-I	2	2	25	75	100
	Total				30	24	230	570
IV	III	23U4CYC08	Data Communication and Networking	4	4	25	75	100
	III	23U4CYP05	Communication Network Lab	3	2	40	60	100
	III	23U4CYC09	Software Engineering	4	3	25	75	100
	III	23U4CYC10	Firewall and Internet Security	4	2	40	60	100
	III	23U4CYC11	Cloud Computing and its Security	4	3	25	75	100
			Elective - I	3	2	25	75	100
	III		Statistical Methods and Their Applications-II	4	4	25	75	100
			SBEC-II	2	2	25	75	100
	IV		NMEC-II	2	2	25	75	100
			Internship	-	-	-	-	-
Total				30	24	255	645	900

SEMESTER: V & VI

SEM	Part	COURSE CODE	COURSE TITLE	Hrs	CRE DIT	MARKS		
						CIA	EE	TOT
V	III	23U5CYC12	Applied Cryptography	5	4	25	75	100
	III	23U5CYCP06	Cryptography Lab	4	2	40	60	100
	III	23U5CYC13	Artificial Intelligence	5	4	25	75	100
	III	23U5CYC14	Intrusion Detection and Prevention System	4	2	40	60	100
	III		ELECTIVE-II	5	4	25	75	100
	III		ELECTIVE-III	5	3	25	75	100
	IV		SBEC-III	2	2	25	75	100
	Total				30	21	205	495
VI	III	23U6CYC15	Cyber Crime Investigation and Digital Forensics	5	4	25	75	100
	III	23U6CYCP07	Cyber Crime Investigation and Digital Forensics Lab	4	2	40	60	100
	III	23U6CYC16	Security Architecture	5	4	25	75	100
	III	23U6CYC17	Machine Learning	4	2	40	60	100
	III		Mini Project	5	3	40	60	100
	III		Elective-IV	5	4	25	75	100
	IV		SBEC-IV	2	2	25	75	100
	V		Extension Activities	-	1	-	-	-
Total				30	22	220	480	700
Grand Total				180	140	1355	3345	4700

SKILL BASED ELECTIVE COURSES (SBEC)		
Semester	Course Code	Course Name
III	23U3CYS01	System administration and maintenance
IV	23U4CYS02	Soft skill
V	23U5CYS03	Wireless networks
VI	23U6CYS04	Ethics and values

CORE ELECTIVES		
Semester	Course Code	Course Name
ELECTIVE – I		
IV	23U4CYE01	Cyber Threat & Model
	23U4CYE02	Biometric Security
	23U4CYE03	Block Chain & Crypto currency
ELECTIVE – II		
V	23U5CYE04	Ethical hacking
	23U5CYE05	Risk management in Cyber Security
	23U5CYE06	Database security
ELECTIVE – III		
V	23U5CYE07	Mobile, wireless, VoIP security
	23U5CYE08	Hardware Security
	23U5CySE09	Management Information System
ELECTIVE – IV		
VI	23U6CYE10	Ecommerce
	23U6CYE11	System Software
	23U6CYE12	Multimedia and its Applications

NON MAJOR ELECTIVE COURSES (NMEC)		
Semester	Course Code	Course Name
III	23U3CYN01	NMEC-I Computer Applications For Automation
IV	23U4CYN02	NMEC-II Basics Of Internet

PROBLEM SOLVING AND PYTHON PROGRAMMING

Course Objective:

The course is designed to provide Basic knowledge of Python. Python programming is intended for software engineers, system analysts, program managers and user support personnel who wish to learn the Python programming language. Python is a language with a simple syntax and a powerful set of libraries. It is an interpreted language, with a rich programming environment. Student interested in using computation to enhance their problem solving abilities.

Course Outcomes:

CO-1: To Develop a basic understanding of programming and the Python programming language.

CO-2: To understand why Python is a useful scripting language for developers.

CO-3: To learn how to identify Python object types.

CO-4: To learn how to use indexing and slicing to access data in Python programs.

CO-5: To define the structure and components of a Python program.

CO-6: To learn how to design and program in Python applications.

CO-7: To learn how to write loops and decision statements in Python.

CO-8: To acquire Object Oriented Skills in Python use lists, Tuples and dictionaries.

CO-9: To learn how to build and package Python modules for reusability.

CO-10: To learn how to design object oriented programs with Python classes.

CO-11: To develop the skill of designing Graphical user Interfaces in Python

CO-12: To develop the ability to write database applications in Python.

UNIT I INTRODUCTION TO PYTHON

12

Define Python - Advantages of Python - History - Features - Uses - Variable and Data Types - Python Interpreter - Identifiers and keywords - Literals - Operators(Arithmetic operator, Relational operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise operator) - Defining Functions.

UNIT II OBJECTS AND DATA STRUCTURE

12

Structure of a Python Program - Elements of Python Input and Output Statements - Control statements (Branching, Looping, Conditional Statement) - Exit function, Difference between break, continue and pass.) - Default arguments - Multiple assignment - while statement - for statement - A find function - Looping and counting.

UNIT III FUNCTIONS, STRINGS AND LISTS

12

Strings and Lists – String Manipulation - Accessing Strings - Basic Operations with String slices - Function and Methods - Recursion, Stack diagrams for recursive functions. List - Working with list - List values - Accessing elements - List membership - List operations - List deletion - Cloning lists - Nested lists - Using Python as calculator - Python shell - Indentation and Atoms.

UNIT IV OBJECT ORIENTED PROGRAMMING

12

Introduction to Classes - Objects and Methods - Standard Libraries - Tuples - Accessing tuples - Exception handling - Iteration - Conditional execution - Return statement and Operations – Opening and closing file - Reading and writing files - Dictionaries - Working with dictionaries - ExceptionHandling - Except clause - Try ? Finally clause.

UNIT V CASE STUDY

12

Basic Syntax - Setting up path - Working with Python – CGI – Networking – Multithreading - Generators and closures - Importing module - Math module - Packages - Composition – Sample Programs- Analyze Sales Outcome in Business - Automate the School Details to Analyze Performance.

Total: 60 Hours

Books for References:

1. Paul Barry, Mark Lutz, “Programming Python: Powerful Object-Oriented Programming”, (4th Edition), 2011.
2. Allen Downey, Jeff Elkner and Chris Meyers, “ Learning with Python: How to Think Like a Computer Scientist” ,2016.
3. John Zelle , “Python Programming: An Introduction to Computer Science”, 3rd Edition, January 2016.
4. Michael Urban and Joel Murach,” Python Programming”, Shroff/Murach, 2016.
5. Mark Lutz, “Programming Python”, O`Reilly, 4th Edition, 2010.
6. Guido van Rossum and Fred L. Drake Jr, “An Introduction to Python – Revised and updated for Python 3.2”, Network Theory Ltd., 2011.
7. John V Guttag, “Introduction to Computation and Programming Using Python“, Revised and expanded Edition, MIT Press, 2013.
8. Robert Sedgewick, Kevin Wayne, Robert Dondero, “Introduction to Programming in Python: An Inter-disciplinary Approach”, Pearson India Education Services Pvt. Ltd., 2016.
9. Reference Link: www.py4inf.com
10. Reference Link: www.pythonlearn.com
11. <https://www.tutorialspoint.com/python>

CYBER SECURITY

Course Objectives

1. Appraise the current structure of cyber security roles across the DoD enterprise, including the roles and responsibilities of the relevant organizations.
2. Evaluate the trends and patterns that will determine the future state of cyber security

Course Outcomes:

1. Analyze threats and risks within context of the cyber security architecture
2. Appraise cyber security incidents to apply appropriate response
3. Evaluate decision making outcomes of cyber security scenarios

UNIT I INTRODUCTION TO CYBERCRIME 09

Introduction - Who are cybercriminals – Classification of Cybercrimes. **Cyberoffenses: How Criminals Plan Them:** Categories of Cybercrime – How Criminals Plan the Attacks –Social Engineering. – Cyberstalking – Cybercafe and Cybercrimes.

UNIT II CYBERCRIME: MOBILE AND WIRELESS DEVICES 09

Cyber crime: Mobile and Wireless devices-Trend mobility-authentication service security-Attacks on mobile phones-mobile phone security Implications for organizations-Organizational measurement for Handling mobile-Security policies and measures in mobile computing era.

UNIT III TOOLS AND METHODS USED IN CYBERCRIME 09

Tools and methods used in cyber crime-Proxy servers and Anonymizers- Phishing Password cracking- Key loggers and Spy wares-Virus and worms-Trojan Horse and Backdoors-Steganography-SQL Injection-Buffer overflow-Attacks on wireless network.

UNIT IV UNDERSTANDING COMPUTER FORENSICS 09

Understanding computer forensic-Historical background of cyber forensic Forensic analysis of e-mail-Digital forensic life cycle-Network forensic-Setting up a computer forensic Laboratory-Relevance of the OSI 7 Layer model to computer Forensic-Computer forensic from compliance perspectives.

UNIT V FORENSICS OF HAND-HELD DEVICES 09

Forensic of Hand –Held Devices-Understanding cell phone working characteristics-Hand-Held devices and digital forensic- Toolkits for Hand-Held device-Forensic of i-pod and digital music devices-Techno legal Challenges with evidence from hand-held Devices.

Total: 45 Hours

Text Book

1. Nina Godbole, Sumit Belapure, "Cyber Security", Willey, 2012.

Books for References:

1. Donaldson, S., Siegel, S., Williams, C.K., Aslam, A., "Enterprise Cyber security -How to Build a Successful Cyber defense Program against Advanced Threats", Apress, 1st Edition, 2015.
2. Berouz Forouzan, "Cryptography and Network Security", TMH, 2 edition, ISBN -978-00-7070208-0. 5
3. Roger Grimes, " Hacking the Hacker" , Wiley, ist Edition, 2017.
4. Cyber Law By Bare Act, Govt of India, It Act 2000.

PROBLEM SOLVING AND PYTHON PROGRAMMING LAB

Course Objective:

To implement Python programs with conditionals and loops. Also represent compound data using Python lists, tuples, dictionaries and Read and write data from/to files in Python.

LIST OF PROGRAMS:

1. Compute the GCD of two numbers.
2. Find the square root of a number (Newton's method)
3. Exponentiation (power of a number)
4. Find the maximum of a list of numbers
5. Linear search and Binary search
6. Selection sort, Insertion sort
7. First n prime numbers
8. Multiply matrices
9. Programs that take command line arguments (word count)
10. Find the most frequent words in a text read from a file
11. Simulate elliptical orbits in Pygame
12. Simulate bouncing ball using Pygame

INTRODUCTION TO JAVA PROGRAMMING

Course Objective:

To understand the concepts of object-oriented, event driven and concurrent programming paradigms and develop skills in Java.

Course Outcomes:

CO-1: Develop an in-depth understanding of functional, logic, and object-oriented Programming.

CO-2: An understanding the concepts of inheritance and polymorphism in Java.

CO-3: An ability to write object-oriented programs of moderate complexity in Java.

CO-4: To Expertise in AWT controls.

CO-5: An ability to incorporate exception handling in object-oriented programs.

CO-6: To gain the knowledge of Layout Management.

CO-7: An ability to write virtual machine programs.

CO-8: An understanding the concepts of Swing components.

CO-9: An ability to write concurrent programming.

CO-10: An ability to create generic programs.

UNIT I OBJECT-ORIENTEDPROGRAMMING – FUNDAMENTALS & INHERITANCE -12

Review of OOP - Objects and classes in Java – defining classes – methods - access specifiers – static members – constructors – finalize method – Arrays – Strings - Packages – JavaDoc comments. Inheritance – class hierarchy – polymorphism – dynamic binding – final keyword – abstract classes – the Object class – Reflection – interfaces – object cloning – inner classes – proxies.

UNIT II EVENT-DRIVEN PROGRAMMING

12

Graphics programming – Frame – Components – working with 2D shapes – Using color, fonts, and images - Basics of event handling – event handlers – adapter classes – actions – mouse events – AWT event hierarchy – introduction to Swing – Model-View- Controller design pattern – buttons – layout management – Swing Components

UNIT III GENERIC PROGRAMMING

12

Motivation for generic programming – generic classes – generic methods – generic code and virtual machine – inheritance and generics – reflection and generics – exceptions – exception hierarchy – throwing and catching exceptions – Stack Trace Elements - assertions – logging

UNIT IV CONCURRENT PROGRAMMING

12

Multi-threaded programming – interrupting threads – thread states – thread properties – thread synchronization – thread-safe Collections – Executors – synchronizers – threads and event-driven programming.

UNIT V CASE STUDY

12

Working with the sample Java programs – Using Inheritance, Multithreading, swings, AWT controls and Layout management, Exception handling.

Total: 60 Hours

Books for References:

1. Cay S. Horstmann and Gary Cornell, “Core Java: Volume I – Fundamentals”, Eighth Edition, Sun Microsystems Press, 2008.
2. H. Schildt, “Java 2 - The Complete Reference”, Seventh Edition, TMH, 2007.
3. K. Arnold and J. Gosling and David Holmes, “The JAVA programming language”, Fourth edition, Addison Wesley, 2005.
4. Timothy Budd, “Understanding Object-oriented programming with Java”, Updated Edition, Pearson Education, 2000.
5. C. Thomas Wu, “An introduction to Object-oriented programming with Java”, Fourth Edition, Tata McGraw-Hill Publishing company Ltd., 2006.
6. <https://sites.google.com/site/herewego2win/home/java>

JAVA PROGRAMMING LAB

Course Objective:

The purpose of this course is to introduce the students to write the programs using Java. Be able to use the Java SDK environment to create, debug and run Java programs.

LIST OF PROGRAMS:

1. String Manipulation using Char Array.
2. Determining the order of numbers generated randomly using Random Class
3. Usage of Vector Class
4. Usage of Calendar Class
5. Programs to implement polymorphism and method overriding.
6. Programs implementing exception handling.
7. Programs to illustrate interfaces in java.
8. Programs to create package in java.
9. Working with Frames and Controls
10. Working with Dialogs and Menus
11. Working with Panel and Layout.
12. Working with Colors and Fonts

MOBILE AND WEB APPLICATION SECURITY

Course Objective:

To address the growing threat to mobile devices & web applications, networks and services delivered over the mobile & web application infrastructure. To provide an introduction to mobile and web application security. To explore the unique challenges facing mobile and web security. This course also covers the security of mobile and web application services (WAS), such as VoIP, text messaging, WAP and mobile HTML.

Course Outcomes:

CO-1: Detect Mobile and Web application security threats.

CO-2: Classify the threats and develop a Security model to prevent, detect and recover from the attacks.

CO-3: Knowledge and understanding of Basics of Mobile and web application security.

CO-4: To be familiar with Mobile and web app security designs using available secure solutions.

CO-5: To be familiar with advanced security and malware issues.

CO-6: To develop the skills to overcome the security threats.

CO-7: To enable web applications to maintain high performance in the face of numerous users and attackers.

CO-8: To apply computer systems concepts to manage the scalability of the web application, and provide prominent service to large numbers of simultaneous users.

CO-9: To apply computer security concepts to designing a web application which is robust to known and unknown attacks.

CO-10: To enable creating applications that apply aforementioned design, performance, and security concepts.

UNIT I INTRODUCTION TO MOBILE SECURITY

9

Introduction to Mobile Security – Building Blocks – Basic security and cryptographic techniques. - Security of GSM Networks - Security of UMTS Networks - LTE Security - WiFi and Bluetooth Security - SIM/UICC Security

UNIT II MOBILE SECURITY IMPLEMENTATION

9

Mobile Malware and App Security- Android Security Model - IOS Security Model - Security Model of the Windows Phone - SMS/MMS, Mobile Geo location and Mobile Web Security - Security of Mobile VoIP Communications - Emerging Trends in Mobile Security

UNIT III SECURITY FUNDAMENTALS

9

Introduction to WWW security-Input Validation-Attack surface Reduction-Classifying and prioritizing threats-Hacking Methodology.

UNIT IV WEB APPLICATION SECURITY PRINCIPLES

9

Authentication-Authorization-Browser Security Principles-Cross site Scripting-Cross site Request Forgery.

UNIT V CASE STUDY

9

Mobile Application Protection Suite (MAPS): Find & Fix Security issues –Evaluate smart phone security issues-Web Applications Security and Vulnerability Analysis Financial Web Applications Security Audit – Securing Web Applications

Total:45 Hours

Books for References:

1. Himanshu Dviwedi, Chris Clark and David Thiel, “Mobile Application Security”, 1stEdition, 2010.
2. Bryan Sullivan,Vincent Liu, “Web Application Security-A Beginner’s Guide”, Mc GrawHill, 1st edition, 2011.
3. Michael Cross, “Developer’s Guide to Web Application Security”, SyngressPublications, 1st edition, 2007.
4. Nouredine Boudriga, “Security of Mobile Communications”, 2009.