

Rayat Shikshan Sanstha's  
**Karmaveer Bhaurao Patil Mahavidyalya,  
Pandharpur Dist-Solapur(MH)**

Autonomous  
NAAC Reaccredited "A+" grade, CGPA: 3.51

Granted under FIST-DST and The Best College


Affiliated to the

Punyashlok Ahilyadevi Holkar, Solapur University, Solapur.

Program : B.Sc(ECS)-III

Semester: V and VI

(Choice Based Credit, Grading and Semester System with effect from the  
academic year 2021-2022)

  
Head,  
B. Sc. (E.C.S.)  
K.B.P. College, Pandharpur

**Faculty of Science**

Subject/ Core Course	Name and Type of the Section		No. of Papers/ Practical	Hrs/week			Total Marks Per Section	UA	CA	Credits
	Type	Name		L	T	P				
<b>Class :</b>	<b>B.Sc(Entire Computer Science)- III Semester – V</b>									
<b>Ability Enhancement Course</b>	AECC	English(Business English)	KBP-S-ECS-3534	4	-	-	100	80	20	4
<b>Core</b>	DSE1A	Data Communication and Networking	KBP-S-ECS-3535	4	-	--	100	80	20	4
	DSE2A	Theory of Computer Science	KBP-S-ECS-3536	4	-	--	100	80	20	4
	DSE3A	Programming Using PHP	KBP-S-ECS-3537	4	-	--	100	80	20	4
	DSE 4A	Advanced Java	KBP-S-ECS-3538	4	-	--	100	80	20	4
<b>Skill Enhancement Course</b>	SEC 3	Visual Programming/Swayam Courses	KBP-S-ECS-3539	4	-	--	100	80	20	4
<b>Total</b>				<b>24</b>	<b>-</b>	<b>--</b>	<b>600</b>	<b>480</b>	<b>120</b>	<b>24</b>
<b>Class :</b>	<b>B.Sc(Entire Computer Science)- III Semester – VI</b>									
<b>Ability Enhancement Course</b>	AECC	English(Business English)	KBP-S-ECS-3640	4	-	--	100	80	20	4
<b>Core</b>	DSE 1B	System Security	KBP-S-ECS-3641	4	-	--	100	80	20	4
	DSE 2B	Compiler Construction	KBP-S-ECS-3642	4	-	--	100	80	20	4
	DSE 3B	Internet Programming Using ASP.NET	KBP-S-ECS-3643	4	-	--	100	80	20	4
	DSE 4B	Angular JS	KBP-S-ECS-3644	4	-	--	100	80	20	4
<b>Skill Enhancement Course</b>	SEC 4	Mobile Application Development	KBP-S-ECS-3645	4	-	--	100	80	20	4
<b>Total (Theory)</b>				<b>24</b>	<b>-</b>	<b>--</b>	<b>600</b>	<b>480</b>	<b>120</b>	<b>24</b>
<b>Practical's on</b>	DSE 2A and DSE 2B		KBP-S-ECS-Lab-P-IX	--	-	5	100	80	20	4
	DSE 3A and DSE 3B		KBP-S-ECS-Lab-P-X	--	-	5	100	80	20	4
	DSE 4A & DSE 4B		KBP-S-ECS-Lab-P-XI	--	-	5	100	80	20	4
	Project Work		KBP-S-ECS-Lab-P-XII	--	-	5	100	80	20	4
<b>Total (Practical)</b>						<b>20</b>	<b>400</b>	<b>320</b>	<b>80</b>	<b>16</b>
<b>Grand Total</b>				<b>48</b>	<b>-</b>	<b>20</b>	<b>1600</b>	<b>1280</b>	<b>320</b>	<b>64</b>

**Rayat Shikshan Sanstha's  
Karmaveer Bhaurao Patil Mahavidyalya, Pandharpur.  
Syllabus Introduced from June, 2021**

**B.Sc(Entire Computer Science) - III Semester - V**

**KBP-S-ECS-3534      English(Business English)**

#### **Unit -IV**

[10]

##### **Data link layer:**

Data link layer Design issues, Error Detection & Correction: Types of Errors, Hamming Distance, **Error Detection:** Parity Check, Cyclic Redundancy Check, Checksum Check Error correction, **Data Link Control:** Framing, Flow & Error Control, Protocols: Simplex, Stop and Wait, Stop and Wait ARQ, Go Back N ARQ, Selective repeat ARQ. Multiple Access Protocol: ALOHA, CSMA, CSMA/CD, CSMA/CA Channelization, FDMA, TDMA, CDMA

#### **Unit -V**

[08]

##### **Network layer:**

Network layer Design issues, Routing Algorithm: Optimality Principle, Shortest Path Routing, Distance Vector Routing, Link State Routing, Broadcast Routing, Multicast Routing Congestion Control Algorithm: General principle of congestion control, Congestion prevention policies, Congestion Control in Virtual-Circuit Subnets, Congestion Control in Datagram Subnets.

#### **Unit –VI**

[10]

##### **Transport, Session, Presentation & Application layers:**

Elements of Transport Protocols-Addressing, Connection establishment, Connection Release, Flow Control & Buffering, TCP/IP protocol suite- Transmission Control Protocol, User Datagram Protocol, IP, Real Time Transport Protocol, FTP, DNS, TelNet, SMTP, POP, HTTP, WWW, SNMP, ARP, RARP etc., Data Compression-Audio Compression, Video Compression.

##### **Reference Books:**

1. Computer Networking by Tannenbaum.
2. Data communication and networking by William Stallings
3. Data communication and networking by B A Forouzan
4. Data communication and networking by Jain

##### **Learning Outcomes :**

1. Gain the basic knowledge of transmission media, modes, network topologies and working of various layers in ISO/OSI, TCP/IP reference model
2. Describes/summarizes different network architectures
3. Obtain the skills of sub-netting and routing mechanism
4. Formulate Transport layer protocols
5. Having knowledge of application protocol standards
6. Describes various network security mechanism



## **Unit-V**

[06]

### **Pushdown Automata:**

Introduction, Definitions, Equivalence of acceptance by final state and empty stack, Definition of DPDA and NPDA their correlation and examples of NPDA, CFG(in GNF) to PDA: Method and example, Closure properties of Regular language, Application of PDA.

## **Unit-VI**

[04]

### **Introduction of Turing Machine:**

Turing Machine model and definition of TM, Language accepted by TM, Design of TM and examples.

### **Reference Books:**

- 1) J.P. Hopcroft, Rajeev Motwani, J.D. Ullman, Introduction to Automata Theory, Languages and Computation, II Edition, Pearson Education, 2001.
- 2) John Martin, Introduction to Languages and Theory of Computation, Tata McGraw Hill, 2003.
- 3) Daniel I.A., Cohen, Introduction to Computer Theory, 2 nd Edition, John Wiley and Sons, Inc, 2000.

### **Learning Objectives :**

1. Understand Grammar and Languages
2. Learn about Automata theory and its application in Language Design
3. Learn about Turing Machines and Pushdown Automata
4. Understand Linear Bound Automata and its applications

**Unit –VII** [06]

**Threading:**

Introduction- Applications with Multiple Threads, Thread Priorities, Synchronization, Life Cycle.

**Unit-VIII** [06]

**File I/O and Streams:**

Stream Classes, Console I/O, File Stream & Byte-Oriented File I/O, Character based File I/O

**Unit –IX** [06]

**Collection Classes:**

Generic collection, Non generic collection.

**Reference Books:**

1. Professional C# - Wrox Publication by Simon Robinson, Christain Nagel, Karli Watson, Jay Glynn, Morgan Skinner, Bill Evjen.
2. Inside C# - Microsoft Press by Tom Archer, Andrew Whitechapel.
3. Programming Microsoft Visual C# 2005 - The Language (Microsoft Press) by Donis Marshall.

**Learning Outcomes :**

1. Get complete knowledge of MS.NET Framework and its internals.
2. Use VS.NET - Integrated Development Environment.
3. Develop deep understanding of C# language features.
4. Build strong concepts of OOP's and implement the same in C#.
5. Create and manage strings, arrays, collections and enumerators using .NET framework library.
6. Perform file input and output operations - read and write data streams, serialize and de-serialize an object graph.
7. Build on applications using N-Tier architecture having Data, DAO and Business classes.
8. Develop database centric applications using ADO.NET.
9. Build GUI applications using .NET Framework and WinForms API.

## **Unit – V Struts**

**[10]**

Introduction to Struts MVC Architecture – Framework Application Flow, Components Model, View and Controller, Building a simple web application using struts Struts Validator – Introduction to validator plugin, Using different types of validators, Configuring the application, Applying validators, Building custom validators, Declarative exception handling Framework – Struts Tiles Framework, Introduction to tiles framework, Building tiles configuring struts-config.xml file creating the template page Struts2 Action – Action Interface, ActionSupport class.

## **Unit – VI Hibernate**

**[10]**

Hibernate Introduction, Hibernate Architecture, Understanding First Hibernate application Hibernate Application - Hibernate with annotation, Hibernate Web application, Hibernate Generator classes, Hibernate Dialects Hibernate Logging - Hibernate with Log4j 1, Hibernate with Log4j 2 Inheritance Mapping - Table per Hierarchy, Table per Hierarchy using Annotation, Table Per Concrete, Table Per Concrete using Annotation, Table Per Subclass, Table Per Subclass using Annotation.

## **Unit – VII Spring**

**[10]**

What is Spring, Spring Modules, Spring Application IOC container Dependency Injection - Constructor Injection, CI Dependent Object, CI with collection, CI with Map, CI Inheriting Bean, Setter Injection, SI Dependent Object, SI with Collection, SI with Map, CI vs SI, Auto wiring, Factory Method Spring with ORM- Spring with Hibernate, Spring with JPA SpEL- SpEL, Operators in SpEL, variable in SpEL ,Web Integration- Spring with Struts2.

### **References Book:**

1. Black Book “Java server programming” J2EE, 1st ed., Dream Tech Publishers, 2008.
3. Kathy walrath”
2. Complete Reference J2EE by James Keogh mcgraw publication
3. Professional Java Server Programming by Subrahmanyam Allamaraju, Cedric Buest Wiley Publication
4. SCWCD, Matthew Scarpino, Hanumant Deshmukh, Jignesh Malavie, Manning publication
5. Core Java, Volume II: Advanced Features by Cay Horstmann and Gary Cornell Pearson Publication
6. Java Persistence with Hibernate by Christian Bauer, Gavin King
7. Spring in Action 3rd edition , Craig walls, Manning Publication
8. Hibernate 2nd edition, Jeff Linwood and Dave Minter, Beginning Après publication.

# **KBP-S-ECS-3539**

## **Programming Using PHP**

**Theory : 60 Lectures**

### **Learning Objectives :**

1. To know & understand concepts of internet programming.
2. Understand how server-side programming works on the web.
3. Understanding How to use PHP Framework (Joomla / Druple)

### **Unit – I Introduction to web techniques [8]**

HTTP basics, Introduction to Web server and Web browser, Introduction to PHP ,What does PHP do?, Lexical structure, Language basics.

### **Unit - II Introduction to Object Oriented Programming in PHP [6]**

Objects, Introspection ,Serialization , Inheritance , Interfaces, Encapsulation

### **Unit – III Databases (PHP-PostgreSQL) [09]**

Using PHP to access a database, Relational databases and SQL, PEAR DB basics ,Advanced database techniques, Sample application (Mini project).

### **Unit – IV Web Techniques [5]**

Variables, Server information, Processing forms, Setting response headers, Maintaining state, SSL.

### **Unit – V PHP framework [4]**

Introduction to PHP framework, Features, Applications, One example like JOOMLA, DRUPAL.

### **Unit – VI XML [8]**

What is XML? , XML document Structure, PHP and XML, XML parser, The document object model, The simple XML extension, Changing a value with simple XML.

### **Unit – VII WEB DESIGNING TECHNOLOGIES(JavaScript-DHTML) [10]**

Overview of JavaScript, DHTML, Object Orientation and JavaScript, Basic Syntax(JS datatypes, JS variables ) ,Primitives, Operations and Expressions, Screen Output and keyboard input(Verification and Validation) ,JS Control statements ,JS Functions , JavaScript HTML DOM Events(onmouseup, onmousedown, onclick, onload, onmouseover, onmouseout), JS Strings, JS String methods ,JS popup boxes(alert, confirm, prompt), Changing property value of different tags using DHTML (ex. adding innerhtml for DIV tag, changing source of image etc.).

### **Unit – VIII AJAX [8]**

Introduction of AJAX, AJAX web application model, AJAX –PHP framework , Performing AJAX validation ,Handling XML data using php and AJAX ,Connecting database using php and AJAX.

**KBP-S-ECS-3540**      **B.Sc(ECS)-III,Sem-VI**  
**English(Business English)**

### **Reference Books**

- 1) M. Stamp, "Information Security: Principles and Practice," 2 st Edition, Wiley
- 2) M. E. Whitman and H. J. Mattord, "Principles of Information Security," 4 st Edition,
- 3) M. Bishop, "Computer Security: Art and Science," Addison Wesley,
- 4) McGraw, "Software Security: Building Security In," Addison Wesley.

### **Learning Outcomes :**

- 1.be able to explain security principles,
- 2.be able to evaluate risks faced by computer systems,
- 3.be able to explain how various attacks work,
- 4.be able to describe and generalize various software vulnerabilities.
- 5.be able to detect common vulnerabilities in software,
- 6.be able to analyze and evaluate software systems for its security properties,
- 7.be able to explain how various security mechanisms work, and correlate these security mechanisms with security principles,

## Unit - VIII

[08]

**Code optimization** Source of optimization, peephole optimization and basic blocks loop in flow graphs, data flow analysis and equations, code improving transformation and aliases, data flow analysis and algorithms, symbolic debugging of optimized code.

### Reference Books:

1. Theoretical computer science by Vievek Kulkarni
2. Compiler constructions: Dhamdere (Mc-Millan)
3. Theory of computer science (K.L.P. Mishra, N. Chandrasekann)
4. Theoretical computer science and compiler construction-I (Dilip Kumar Sultania)
5. Theoretical computer science and compiler construction-I (Sharada Patil)

### Learning Outcomes :

1. Express the grammar of a programming language.
2. Build lexical and syntax analyzers and use them in the construction of scanners and parsers.
3. Perform the operations of semantic analysis.
4. Build a code generator.
5. Use different compiler optimization schemes in addition to efficient register allocation and garbage collection.
6. Design and program a complete working compiler for a given language.

## **Unit - V**

### **State Management**

Using hidden fields, Session and application state, Custom model bindings, Distributed caching.

### **Creating RESTful Services using Web API**

Overview of Web API, Building servers and clients, Content negotiation, Attribute routing, Custom model binding, Invoking RESTful services from AJAX clients,

## **Unit - VI**

### **Creating Single Page Applications**

Overview of SPAs, Using GruntJS, NPM, and Bower support, Creating SPAs using Angular and Knockout.

### **Security using ASP.NET Identity**

Security concepts, Overview of ASP.NET Identity, Customization possibilities using ASP.NET Identity.

## **Reference Books:**

1. Professional ASP.NET 2.0 - Wrox Publication by Bill Evjen, Scott Hanselman, Farhan Muhammed, Srinivasa Sivakumar, Devin Rader.
2. Microsoft ASP.NET 2.0 Step by Step - Microsoft Press By George Shepherd.
3. E-Commerce by David Whitley Tata McGraw-Hill

## **Learning Outcomes :**

1. Understand the Microsoft Web Technologies stack.
2. Develop web applications using Model View Control.
3. Create MVC Models and write code that implements business logic within Model methods, properties, and events.
4. Create Views in an MVC application that displays and edits data and interacts with Models and Controllers.



### **DATA BINDING, PROPERTY BINDING, EVENT BINDING AND 2 -WAY DATA BINDING**

What is Data Binding?,String Interpolation.,What is Property Binding?,String Interpolation VS Property Binding,What is Two-way Data Binding?, How to implement 2-way Data Binding?,Style Binding, Class Binding. ,Overview of Event Binding.,Element reference and \$event service in Angular.Event Filtering Hands-On Practicals:Practice on Event Binding with certain conditions., Implement few Property Bindings.,Applying 2-way Data Binding in a form.

#### **SERVICES IN ANGULAR**

What is Services?,Why should we use Services?,How to create Services in Angular?,What is Dependency Injection? ,How to use Dependency Injection? ,Singleton Object –Overview,Singleton Obj VS Regular Obj,What is providers? ,What is@Injectable()?.Registering a Service in Providers VS @Injectable() Decorators,What is HierarchicalDI? Hands-On Practicals:, Create a Service and use some Business Logics. Practice on Dependency Injection & Singleton Object. Use Services for sharing Data between Components.

### **DIRECTIVES & CUSTOM DIRECTIVES IN ANGULAR**

What is Directives?,Component VS Directives,What are the Different kind of Directives available in Angular?,Difference between Structural & Attribute Directives.,Overview of All Structural & Attribute Directives. ,ngIf ,ngFor , ngSwitch ,hidden ,ngClass ,ngStyle - ngNonBindable ,ngTempate ,ngContent ,ng-container ,Difference between ngIf& hidden directives. ,How to create Custom Directives? ,How to pass Input property to the custom directive? ,How to receive Input property from the custom directive? ,What is @Input decorator and its methods to use?,What is ElementRef and its purpose? Hands-On Practicals: Practice on All kind of Directives. Create a Simple Custom Directive Create a Complex Custom directive with accept data from outside.Using Custom Directive change the Form values.

#### **PIPES IN ANGULAR**

What is Pipe in Angular? Purpose of the Pipes. Difference between Pipes & Directives. Detailed explanation of the below Pipes, Lowercase ,Uppercase ,Titlecase ,Slice , Json ,Number ,Percent ,Currency ,Date ,What is Pure Pipe & Impure Pipe? How to create Custom Pipes? What is chaining Pipes? What is Parameterized Pipe? ,Hands-On Practicals: Practice on All kind of default Pipes. Transform the form & table data with 7 different custom Pipes.

**HTTP & OBSERVABLE IN ANGULAR**

HTTP Client in Angular ,REST API Overview ,How to establish HTTP request to Server side.How HTTP Mechanism works? What are the methods available in HTTP? What is Observable &Observer? What are the call back methods available in Observable? How to create a CustomObservable? What is next(), error() and complete()? How to send Query Params & Custom Headers?How to connect any backend &APIs? What is CORS? How to resolve CORS errors? Hands-On Practicals: A real-time HTTP Project by using connecting 4 APIs

**AUTHORIZATION IN ANGULAR & JWT**

Client side Authorization vs Server side Authorization.Serve side Authorization by using JWT Token.Set JWT Key expiry time.HTTP interceptors-Overview ,How to configure HTTP interceptors? Hands-On Practicals: Create and Verify JWT key in real-time project.,Validate the request using HTTP interceptors.

**FILE UPLOAD IN ANGULAR**

Angular form setups for File Upload. FormData() in Angular,Server side setups for File Upload.,Multer NPM in node. ➤How to use Multer NPM as middleware in Node? ,Attach the Multer middleware in server-sider outing. Hands-On Practicals: Upload Product Images with validat

**Reference Book :**

1. Angular — The Complete Guide By-Maximilian Schwarzmüller

**Learning Outcomes :**

- 1.Understand the design of single-page applications and how Angular facilitates their development.
- 2.Separate the model, view, and controller layers of your application and implement them using Angular.
- 3.Master Angular expressions, filters, and scopes.
- 4.Build Angular forms Write Angular directives

Displaying Text with TextView, Retrieving Data from Users, Using Buttons, Check Boxes and Radio Groups, Getting Dates and Times from Users, Using Indicators to Display Data to Users, Adjusting Progress with SeekBar, Working with Menus using views

**Unit- VII**

[5]

Displaying Pictures

Gallery, ImageSwitcher, GridView, and ImageView views to display images, Creating Animation

**Unit – VIII**

[5]

Files, Content Providers, and Databases

Saving and Loading Files, SQLite Databases, Android Database Design, Exposing Access to a Data Source through a Content Provider, Content Provider Registration, Native Content Providers

**Unit- IX**

[5]

Intents and Intent Filters

Intent Overview, Implicit Intents, Creating the Implicit Intent Example Project, Explicit Intents, Creating the Explicit Intent Example Application, Intents with Activities, Intents with Broadcast Receivers

**Unit – X**

[5]

A Basic Overview of Android Threads and Thread handlers

An Overview of Threads, The Application Main Thread, Thread Handlers, A Basic Threading Example, Creating a New Thread, Implementing a Thread Handler, Passing a Message to the Handler

**Reference Books :**

- 1) B. Phillips et al., Android Programming: Big Nerd Ranch Guide (as mentioned above);
- 2) Christian Keur and Aaron Hillegass, iOS Programming: The Big Nerd Ranch Guide, 6<sup>th</sup> edition, 2016;
- 3) Valentino Lee, Heather Schneider, and Robbie Schell, Mobile Applications: Architecture, Design and Development, Prentice Hall, 2004;
- 4) Tomasz Nurkiewicz and Ben Christensen, Reactive Programming with RxJava, O'Reilly Media, 2016;

**Learning Outcomes :**

1. Demonstrate their understanding of the fundamentals of Android operating systems
2. Demonstrate their skills of using Android software development tools
3. Demonstrate their ability to develop software with reasonable complexity on mobile platform
4. Demonstrate their ability to deploy software to mobile devices

## **KBP-S-ECS- Lab-P-X**

### **Assignment**

#### **Java Networking**

1. Write an application which will retrieve IP address for given website.
2. Write an application which will retrieve the content of the given URL with different web-page related information.
3. Write a two – way network based chat application. It will use TCP/IP protocol and will do communication in serial manner. Application
4. Write an application which will retrieve file from server machine and save that file on client machine. File name will be provided by client. Application
5. Write a client program to send any string from its standard input to the server program. The server program reads the string, finds number of characters and digits and sends back to client program. Use connection-oriented communication.
6. Write a client program to send any string from its standard input to the server program. The server program reads the string, finds number of characters and digits and sends back to client program. Use connection-less communication.

#### **JDBC Programming**

1. Write down Five Basic steps to establish JDBC connection from Java Application. Also mention sample code for each step.
2. Write a JDBC application which will interact with Database and perform the following task.
  - 1) Create Student Table with RollNo, Name, and Address field and insert few records.
  - 2) Using Statement Object display the content of Record.
  - 3) Using Statement Object Insert Two Record.
  - 4) Using Statement Object Update One Record.
  - 5) Using Statement Object Delete One Record.
  - 6) Using Statement Object display the content of Record.
3. Write a JDBC application which will interact with Database and perform the following task.
  - 1) Create Student Table with RollNo, Name, and Address field and insert few records.
  - 2) Using PreparedStatement Object display the content of Record.
  - 3) Using PreparedStatement Object Insert Two Record.
  - 4) Using PreparedStatement Object Update One Record.
  - 5) Using PreparedStatement Object Delete One Record.
  - 6) Using PreparedStatement Object display the content of
4. Write a JDBC application which will interact with Database and perform the following task.
  - 1) Create a store procedure which will insert one record into employee table.
  - 2) Create a store procedure which will retrieve salary for given employee id.
  - 3) Write a java application which will call the above procedure and display appropriate information on screen.
5. Design a JDBC application which will demonstrate Scrollable ResultSet functionality.
6. Design a JDBC application which will demonstrate Scrollable ResultSet functionality.
7. Design a JDBC application which will demonstrate Transaction management functionality.

#### **JSP**

## **KBP-S-ECS-Lab-P-XII**

### **Semester VI Major Project**

A group of maximum Two students prepare a major project under the guidance of internal teacher. Project report will be evaluated by the internal teacher out of 20 marks and there will be viva-voce examination for 80 marks.( Documentation -- 20 Marks, Online Presentation-- 30 Marks, Viva-Voce -- 30 Marks.) The panel for viva-voce examination will be appointed by university. The student should prepare the project report on the work carried out as a project in semester VI.

#### **Guidelines for Project:**

**Number of Copies:** The student should submit one Hard-bound copies of the Project Report.

**Acceptance/Rejection of Project Report:** The student must submit an outline of the project report to the college for approval. The college holds the right to accept the project or suggest modifications for resubmission. Only on acceptance of draft project report, the student should make the final copies.

**Format of the Project Report:** The student must adhere strictly to the following format for the submission of the Project Report.

**a. Paper:** The Report shall be typed on white paper, A4 size, for the final submission. The Report to be submitted to the must be original and subsequent copies may be photocopied on any paper.

**b. Typing:** The typing shall be of standard letter size, 1.5 spaced and on one side of the paper only. (Normal text should have Arial Font size 11 or 12. Headings can have bigger size)

**c. Margins:** The typing must be done in the following margins: Left -----1.5 inch, Right ----- 1 inch Top ----- 1 inch, Bottom ----- 1 inch

**d. Front Cover:** The front cover should contain the following details:

**TOP :** The title in block capitals of 6mm to 15mm letters.

**CENTRE:** Full name in block capitals of 6mm to 10mm letters.

**BOTTOM:** Name of the University, Course, Year of submission -all in block capitals of 6mm to 10mm letters on separate lines with proper spacing and centering.

**f. Blank Sheets:** At the beginning and end of the report, two white black bound papers should be provided, one for the purpose of binding and other to be left blank.

#### **Documentation Format**