

**MANNAR THIRUMALAI NAICKER COLLEGE**

**PASUMALAI, MADURAI- 625 004**

(An Autonomous Institution Re- accredited with 'A' Grade by NAAC)



**M.Sc (COMPUTER SCIENCE)**

**SYLLABUS AND REGULATIONS**

UNDER  
CHOICE BASED CREDIT SYSTEM (CBCS)  
(For those who joined during 2016-2017 and after)

**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous), Madurai - 4**

**M.Sc (COMPUTER SCIENCE)**

**Table-1: COURSE PATTERN**

**(Those Who Joined in 2016 – 2017 and after)**

| <b>Study Component</b>    | <b>I Sem.</b> | <b>II Sem.</b> | <b>III Sem.</b> | <b>IV Sem.</b> | <b>Total Hrs/week</b> | <b>Total Credit</b> | <b>No.Of Papers</b> | <b>Total Marks</b> |
|---------------------------|---------------|----------------|-----------------|----------------|-----------------------|---------------------|---------------------|--------------------|
| <b>Core Subject</b>       | 5(4)          | 5(4)           | 5(4)            | 6(5)           | 105                   | 78                  | 18                  | 1800               |
|                           | 5(4)          | 5(4)           | 5(4)            | 6(5)           |                       |                     |                     |                    |
|                           | 5(4)          | 5(4)           | 5(4)            | 18(12)         |                       |                     |                     |                    |
|                           | 5(4)          | 5(3)           | 5(4)            |                |                       |                     |                     |                    |
|                           | 5(3)          | 5(3)           |                 |                |                       |                     |                     |                    |
|                           | 5(3)          |                |                 |                |                       |                     |                     |                    |
| <b>Elective</b>           | -             | 5(4)           | 4(4)            | -              | 9                     | 8                   | 2                   | 200                |
| <b>Non-Major Elective</b> | -             | -              | 6(4)            | -              | 6                     | 4                   | 1                   | 100                |
| <b>Total</b>              | 30<br>(22)    | 30<br>(22)     | 30<br>(24)      | 30<br>(22)     | 120                   | 90                  | 21                  | 2100               |

MANNAR THIRUMALAI NAICKER COLLEGE (AUTONOMOUS)

MADURAI – 4.

(Re-Accredited with ‘A’ Grade by NAAC)

CHOICE BASED CREDIT SYSTEM

DEPARTMENT OF COMPUTER APPLICATIONS

M.Sc(COMPUTER SCIENCE)

COURSE STRUCTURE

(W.e.f 2016 – 2017 batch onwards)

| SEMESTER – I |  |              |             |           |               |            |            |
|--------------|--|--------------|-------------|-----------|---------------|------------|------------|
| Subject Code | Subjects                               | No.of Papers | Hours/ Week | Credits   | Maximum Marks |            |            |
|              |  |              |             |           | Int.          | Ext.       | Tot.       |
| 16PCSC11     | Resource Management Techniques         | 1            | 5           | 4         | 25            | 75         | 100        |
| 16PCSC12     | Computer System Architecture           | 1            | 5           | 4         | 25            | 75         | 100        |
| 16PCSC13     | Data Structures and Algorithm          | 1            | 5           | 4         | 25            | 75         | 100        |
| 16PCSC14     | Relational Data Base Management System | 1            | 5           | 4         | 25            | 75         | 100        |
| 16PCSCP1     | Data Structures Using C – Lab          | 1            | 5           | 3         | 40            | 60         | 100        |
| 16PCSCP2     | Visual Programming and RDBMS – Lab     | 1            | 5           | 3         | 40            | 60         | 100        |
|              | <b>Total</b>                           | <b>6</b>     | <b>30</b>   | <b>22</b> | <b>180</b>    | <b>420</b> | <b>600</b> |

| SEMESTER – II |   |              |             |           |               |            |            |
|---------------|---|--------------|-------------|-----------|---------------|------------|------------|
| Subject Code  | Subjects  | No.of Papers | Hours/ Week | Credits   | Maximum Marks |            |            |
|               |   |              |             |           | Int.          | Ext.       | Tot.       |
| 16PCSC21      | Wireless Communications and Networks                                | 1            | 5           | 4         | 25            | 75         | 100        |
| 16PCSC22      | Advanced Operating System   | 1            | 5           | 4         | 25            | 75         | 100        |
| 16PCSC23      | Java Programming  | 1            | 5           | 4         | 25            | 75         | 100        |
| 16PCSCP3      | Linux and Shell Programming – Lab                                   | 1            | 5           | 3         | 40            | 60         | 100        |
| 16PCSCP4      | Java Programming – Lab  | 1            | 5           | 3         | 40            | 60         | 100        |
| 16PCSE21      | Elective – I (One from List-A)<br>Cloud Infrastructure and Services | 1            | 5           | 4         | 25            | 75         | 100        |
| 16PCSE22      | Software Testing and Quality Assurance                              |              |             |           |               |            |            |
| 16PCSE23      | Digital Image Processing  |              |             |           |               |            |            |
|               | <b>Total</b>  | <b>6</b>     | <b>30</b>   | <b>22</b> | <b>180</b>    | <b>420</b> | <b>600</b> |

**MANNAR THIRUMALAI NAICKER COLLEGE (AUTONOMOUS)**

**MADURAI – 4.**

**(Re-Accredited with ‘A’ Grade by NAAC)**

**CHOICE BASED CREDIT SYSTEM**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**M.Sc (COMPUTER SCIENCE)**

**COURSE STRUCTURE**

**(W.e.f 2016 – 2017 batch onwards)**

| <b>SEMESTER – III</b> |                                     |                     |                    |                |                      |             |             |
|-----------------------|-------------------------------------|---------------------|--------------------|----------------|----------------------|-------------|-------------|
| <b>Subject Code</b>   | <b>Subjects</b>                     | <b>No.of Papers</b> | <b>Hours/ Week</b> | <b>Credits</b> | <b>Maximum Marks</b> |             |             |
|                       |                                     |                     |                    |                | <b>Int.</b>          | <b>Ext.</b> | <b>Tot.</b> |
| 16PCSC31              | Software Engineering                | 1                   | 5                  | 4              | 25                   | 75          | 100         |
| 16PCSC32              | Dot Net Programming                 | 1                   | 5                  | 4              | 25                   | 75          | 100         |
| 16PCSCP5              | Dot Net Programming - Lab           | 1                   | 5                  | 4              | 40                   | 60          | 100         |
| 16PCSPR1              | Mini Project                        | 1                   | 5                  | 4              | 40                   | 60          | 100         |
|                       | Elective –II<br>Any one from List-B |                     |                    |                |                      |             |             |
| 16PCSE31              | Big Data Analytics                  | 1                   | 4                  | 4              | 25                   | 75          | 100         |
| 16PCSE32              | Current Trends in Web Security      |                     |                    |                |                      |             |             |
| 16PCSE33              | Semantic Web                        |                     |                    |                |                      |             |             |
| 16PCSN31              | Multimedia Technologies             | 1                   | 6                  | 4              | 25                   | 75          | 100         |
|                       | <b>TOTAL</b>                        | <b>6</b>            | <b>30</b>          | <b>24</b>      | <b>180</b>           | <b>420</b>  | <b>600</b>  |
| <b>SEMESTER – IV</b>  |                                     |                     |                    |                |                      |             |             |
| <b>Subject Code</b>   | <b>Subject</b>                      | <b>No.of Papers</b> | <b>Hours/ Week</b> | <b>Credits</b> | <b>Maximum Marks</b> |             |             |
|                       |                                     |                     |                    |                | <b>Int.</b>          | <b>Ext.</b> | <b>Tot.</b> |
| 16PCSC41              | Web Technology                      | 1                   | 6                  | 5              | 25                   | 75          | 100         |
| 16PCSCP6              | Web Design - Lab                    | 1                   | 6                  | 5              | 40                   | 60          | 100         |
| 16PCSPR2              | Project Work and Viva-Voce          | 1                   | 18                 | 12             | 40                   | 60          | 100         |
|                       | <b>TOTAL</b>                        | <b>3</b>            | <b>30</b>          | <b>22</b>      | <b>105</b>           | <b>195</b>  | <b>300</b>  |



**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**  
**DEPARTMENT OF COMPUTER SCIENCE**  
**Course Structure – Semester wise CBCS (w.e.f.2017-2018)**

**Class : M.Sc (CS)**

**Semester : III**

**Hours : 05**

**Subject Code : 16PCSC31**

**Credits : 04**

**SOFTWARE ENGINEERING**

**OBJECTIVES**

- To impart sound knowledge to design and implement an efficient software system and manage the resources.
- To learn about generic models of software development process.
- To understand fundamental concepts of requirements engineering and Analysis Modelling.
- To understand the different design techniques and their implementation.
- To learn various testing and maintenance measures.

**UNIT-I**

Introduction to Software Engineering: The Evolving Role of Software – Software - The Changing Nature of software – Software Myths – How it all starts. A Generic view of process: Software Engineering – A layered Technology – A process Framework – The capability Maturity Model Integration – Process Patterns – Process Assessment – Personal and Team Process Models – Process Technology – Product and Process. Process Models: Prescriptive Models – The Waterfall Model – Incremental Process Models – Evolutionary Process Models. An Agile View of Process: What is Agility – What is an Agile Process - Agile Process Models.

**UNIT-II**

Software Engineering Practice: Software Engineering Practice – Communication Practices – Planning Practices – Modeling Practices – Construction Practice – Deployment. System Engineering: Computer Based Systems – The System Engineering Hierarchy – Business Process Engineering – Product Engineering – System Modeling. Requirements Engineering – A Bridge to Design and Construction – Requirement Engineering Tasks – Initiating the Requirements Engineering Process – Eliciting Requirements. Building the Analysis Model: Requirements Analysis –

Analysis Modeling Approaches – Data Modeling Concepts – Object Oriented Analysis – Scenario Based Modeling – Flow Oriented Modeling – Class Based Modeling – Creating a Behavioral Model.

### **UNIT-III**

Design Engineering: Design within the Context of Software Engineering – Design Process and Design Quality – Design Concepts – The Design Model – Pattern Based Software Design. Creating an Architectural Design: Software Architecture – Data Design – Architectural Styles and Patterns – Architectural Design – Assessing Alternative Architectural Designs – Mapping Data Flow into Software Architecture. Performing User Interface Design: The Golden Rules – User Interface Analysis and Design – Interface Analysis – Interface Design Steps – Design Evaluation.

### **UNIT-IV**

Testing Strategies: A strategic Approach to Software Testing – Strategic Issues – Test Strategies for Conventional Software – Test Strategies for Object Oriented Software – Validation Testing – System Testing – The Art of Debugging. Testing Tactics: Software Testing Fundamentals – Black Box and White Box Testing – White Box Testing – Basis Path Testing – Control Structure Testing – Black Box Testing – Object Oriented Testing Methods – Testing methods Applicable at the Class level – Interclass Test Case Design – Testing for Specialized Environments, Architectures, and Applications – Testing Patterns. Product Metrics: Software Quality – A Framework for Product Metrics - Metrics for the Analysis Model – Metrics for the Design Model – Metrics for Source Code – Metrics for Testing – Metrics for Maintenance.

### **UNIT-V**

Web Engineering: Attributes of Web Based Systems and Applications \_ Web Engineering Layers – The Web Engineering Process – Web Engineering Best Practices. Initiating a Webapp Project - Formulating Web Based Systems – Planning for Web Engineering Process – The Web Engineering Team - Project Management Issues for Web Engineering – Metrics for Web Engineering and WebApps – Worst practices for WebApp Projects.

### **Text Book:**

1. Roger S. Pressman, **Software Engineering**, TMH 6<sup>th</sup> Edition, Mc Graw Hill, New York.  
Unit I : Chapter 1(Full), Chapter 2(Full), Chapter 3 Section :3.1 - 3.4, Chapter4(Full).  
Unit II : Chapter6(Full), Chapter7 Section :7.1 - 7.4, Chapter8(Full).  
Unit III : Chapter 9(Full),Chapter 10(Full), Chapter12(Full).  
Unit IV : Chapter13(Full), Chapter 14(Full), Chapter 15(Full).  
Unit V : Chapter 16(Full), Chapter 17(Full).

**Reference Books:**

1. Sommerville, Software Engineering, Seventh Edition, Addison Wesley, New Delhi, 2010.
2. R.Fairley, **Software Engineering Concepts**, Tata McGraw-Hill, New Delhi, 1997.





**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**Course Structure – Semester wise CBCS (w.e.f.2017-2018)**

**Class : II M.Sc (CS)**

**Semester : III**

**Sub code : 16PCSC32**

**Hours : 05**

**Credits : 04**

**DOT NET PROGRAMMING**

**OBJECTIVES**

- To learn the Basic Architecture of .NET framework.
- To understand the Overview of ODBC and Universal Data Access.
- To Familiarize with ADO.NET, Programming with Visual Studio.NET and Deployment.

**UNIT-I**

Visual Basic 2008: Event Driven Programming – Visual Basic 2008 IDE – Creating simple application – Microsoft .Net Framework – Common Language Runtime – Writing Software – Information and Data – Working with variables – Comments and whitespaces – Data types – Storing Variables – Methods.

**UNIT-II**

Controlling the flow: Making decisions – IF – Select case – Loops - Working with Data Structures – Arrays – Enumerations – Structures – Constants – ArrayList – Collections – Hashtable – Advanced Array Manipulation. Building Windows Applications: Responding to Events – Building Simple Applications – Creating More complex Applications – Using Multiple Forms.

**UNIT-III**

Displaying Dialog Boxes: MessageBox – OpenFileDialog – SaveDialog – FontDialog – ColorDialog – PrintDialog. Creating Menus: Understanding Menu Features – Creating Menus – Context Menus. Debugging and Error Handling: Error types – Debugging – Error handling.

**UNIT-IV**

Creating Windows Forms User Controls: Windows Forms Controls – Creating and Testing a user controls – Design Time or Run time – Command Link Control. Accessing Databases: What is a database? – SQL SELECT – Queries in Access – Customer query – Data Access Components – Data Binding. ADO.NET – ADO.NET Classes in action – Data binding – LINQ to SQL.

**UNIT-V**

ASP.NET: Thin-Client Architecture – Web forms versus Windows forms – Web applications: the basic – Active server pages – Building Web Applications – Web Projects: Website Authentication. Deploying your application: What is Deployment – Creating Visual Studio 2008 Setup Application – User Interface Editor – Deploying Different Solutions.

**Text Book:**

1. Thearon Willis, **Beginning Microsoft Visual Basic 2008**, Bryan Newsome Wrox Press,

Birmingham, 2008.

Unit I - Chapter 1(Full), Chapter2(Full), Chapter3(Full).

Unit II - Chapter4(Full), Chapter5(Full), Chapter7(Full).

Unit III- Chapter8(Full), Chapter9(Full), Chapter 10(Full).

Unit IV- Chapter14(Full), Chapter 16(Full), Chapter 17(Full).

Unit V - Chapter 18(Full), Chapter 19(Full), Chapter24(Full).

**Reference Books:**

1. Steven Holzner, **Visual Basic .NET Programming - Black Book**, Dreamtech Press, New Delhi, 2005.
2. Bill Shelton, Billy Hollis, **Professional Visual Basic 2012 and .NET 4.5 Programming**, John Wiley & Sons, Wrox Press, Birmingham, 2013.



**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**Course Structure – Semester wise CBCS (w.e.f.2017-2018)**

**Class : M.Sc (CS)**

**Semester : III**

**Sub code : 16PCSCP5**

**Hours : 05**

**Credits : 04**

**DOT NET PROGRAMMING - LAB**

**VB.NET PROGRAMMING**

1. Write a VB.Net program to demonstrate Class, Read only property, Constructor, Structure, Enum, Inheritance, Interface, Polymorphism, Exception handling.
2. Write a VB .Net program to illustrate array, stack, hash table, dictionary base collections.
3. Write a VB.Net program to accept a String and convert the case of the characters.
4. Develop a menu based VB.Net application to implement a Text editor with cut, copy, paste, save and close operations.
5. Write a program to implement a Calculator operations.
6. Develop a form in VB.NET to pick a date from Calendar control and display the day, month, and year details in separate text boxes.
7. Design a form to create digital clock
8. Design form to select image from list and display it in the picture box
9. Design a Logon form and validate it
10. Develop a VB.Net application to perform timer based quiz of 10 questions.
11. Develop a VB.Net application using the File and Directory controls to implement a common dialog box.
12. Develop a database application to store the details of students using ADO.NET
13. Develop a VB.Net application using Data grid to display records.
14. Develop a VB.Net application using Data grid to add, edit and modify records.

**ASP.NET and XML PROGRAMMING**

1. Create a web application in ASP.NET using three different controls to the ASP.NET page for reserving rooms in hotel. The three controls are a button control, a label control, and a drop-down list control.
2. Develop a web application to read an XML document containing subject, mark scored, and year of passing into a Dataset.



**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**Course Structure – Semester wise CBCS (w.e.f.2017-2018)**

**Class : M.Sc (CS)**

**Semester : IV**

**Sub code : 16PCSPR1**

**Hours : 05**

**Credits : 04**

### **MINI PROJECT**

#### **Objectives:**

- This course is to train the student in executing a project and preparing the report of work done.
- The project work is to be carried for the entire semester and the report of work done is to be Submitted to the college.

Total marks: 100(Internal: 40 marks, External : 60 marks)

#### **Parameters:**

##### **For Internal Marks (40):**

|                                      |            |
|--------------------------------------|------------|
| Start-up Review                      | :5 Marks   |
| Design Review                        | :7.5 Marks |
| Implementation and validation Review | :7.5 Marks |
| Final Review                         | :10 Marks  |
| Overall Performance                  | :10 Marks  |

##### **For External Marks (60):**

|                                  |           |
|----------------------------------|-----------|
| Project Report                   | :20 Marks |
| Project work,Demo & Presentation | :30 Marks |
| Viva-Voce                        | :10 Marks |



**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**Course Structure – Semester wise CBCS (w.e.f.2017-2018)**

**Class : M.Sc(CS)**

**Semester : III**

**Sub code : 16PCSE31**

**Hours : 04**

**Credits : 04**

**BIG DATA ANALYTICS**

**OBJECTIVES**

- To bring together several key big data technologies used for storage, analysis and manipulation of data.
- To recognize the key concepts of Hadoop framework, MapReduce, Pig, Hive, and No-SQL.

**UNIT-I**

Types of Digital Data: Classification of Digital Data. Introduction to Big Data: Characteristics of Data – Evolution of Big Data – Definition of Big Data – Challenges in Big Data – What is Big Data? – Other characteristics of Data – Why Big Data? – Traditional Business Intelligence (BI) vs Big Data – A typical Data Warehouse environment – A typical Hadoop environment – What is new today? – Realms of Big Data.

**UNIT-II**

Big Data Analytics: What is Big Data Analytics? – Classification of Analytics – Greatest challenges that prevent business from capitalizing on Big Data – Top challenges facing Big Data – Why is Big Data Analytics important? – Data Science – Data Scientist – Terminologies used in Big Data Environment – BASE – Analytics tool.

**UNIT-III**

The Big Data Technology Landscape: NoSQL – Types of NoSQL Database – Why NoSQL? – Advantages of NoSQL – Use of NoSQL in Industry – SQL vs NoSQL – Comparison of SQL, NoSQL and NewSQL. Hadoop: Features of Hadoop – Advantages of Hadoop – Overview of Hadoop – Hadoop distribution – Hadoop vs SQL – Integrated Hadoop System – Cloud-Based Hadoop Solutions.

**UNIT-IV**

Introduction to Hadoop: Introducing Hadoop – Why Hadoop? – Why not RDBMS? – RDBMS vs Hadoop – Distributed computing challenges – History of Hadoop – Hadoop overview – Use case of Hadoop – Hadoop distribution – HDFS – Processing data with

Hadoop – Managing resources and Application with Hadoop YARN – Interacting with Hadoop Ecosystem.

## **UNIT-V**

Introduction to MangoDB: What is MangoDB – Why MangoDB – Terms used in RDBMS and MangoDB – Data types in MangoDB - MangoDB query language.  
Introduction to Machine Learning: Introduction – Machine Learning Definition – Machine Learning Algorithms – Regression Model – Linear Regression – Clustering – Collaborative Filtering – Association Rule Mining – Decision Tree.

### **Text Book:**

1. Seema Acharya, Subhashini Chellappan, **Big Data and Analytics**, Wiley, New Delhi, 2015.  
Unit I - Chapter 1(Full), Chapter 2(Full).  
Unit II - Chapter 3(Full).  
Unit III - Chapter 4(Full).  
Unit IV- Chapter 5(Full).  
Unit V- Chapter 6(Full), Chapter 12(Full).

### **Reference Books:**

1. DT Editorial Services, **Big Data, Black book**, Ninth Edition, Dreamtech, New Delhi, 2016.
2. Michael Minelli, Michele Chambers, Ambiga Dhiraj, **Big Data, Big Analytics**, Wiley, New Delhi, 2016.



**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)  
DEPARTMENT OF COMPUTER APPLICATIONS**

**Course Structure – Semester wise CBCS (w.e.f.2017-2018)**

**Class : M.Sc (CS)**

**Semester : III**

**Sub code : 16PCSE32**

**Hours : 04**

**Credits : 04**

**CURRENT TRENDS IN WEB SECURITY**

**OBJECTIVES**

- To understand the design concept of cryptography and authentication.
- To learn the algorithm used for security.
- To realize the design concepts of server security.
- To study the importance of securing web applications.

**UNIT-I**

The Web Security Landscape: Web Security Problem – Risk Analysis and Best Practices. Cryptography Basics: Understanding Cryptography – Symmetric Key Algorithm – Public key algorithm – Message Digest Functions - Understanding SSL and TLS. What is SSL – SSL User’s Point of View.

**UNIT-II**

Digital Identification I: Password, Biometrics and Digital Signature – Physical Identification – Using Public keys for identification – Real-World Public Key Examples. Digital Identification II: Digital Certificates, CAs and PKI: Understanding Digital Certificates with PGP – Third-Party Registrars – Public key infrastructure – Open Policy Issues.

**UNIT-III**

Privacy and Security for users: Understanding privacy – User-provided information – Log files – Understanding cookies - Web bugs. Privacy-Protecting Techniques: Choosing good service provider – picking great password – cleaning up – avoiding spam and junk mail – identity theft – Privacy-Protecting Technologies – Blocking Ads and crushing cookies – Anonymous browsing – secure email. Backups and Antitheft: Using backup – Preventing theft.

**UNIT-IV**

Physical Server Security: Planning for the forgotten threats – Protecting computer hardware and data – personnel. Host Security for servers: Current Host Security problems – Securing host computer – Minimizing risk – Operating securely – Secure remote access and Content updating - Firewalls and the web.

**UNIT-V**

Securing Web Applications: A Legacy of Extensibility and Risk – Rules to Code by – Securely using Fields, Hidden Fields and Cookies – Rules for programming languages – Using PHP securely - Writing scripts – Connecting to databases. Securing Web service: Protecting DNS and Domain Registration. Computer Crime: Criminal Hazards.

**Text Book:**

1. SimsonGarfinkel and Gene Spafford, **Web security, Privacy & Commerce**, 11<sup>th</sup> Edition,

O'REILLY, 2002.

Unit I - Chapter 1(Full), Chapter3(Full), Chapter 5(Full).

Unit II - Chapter6(Full), Chapter7(Full).

Unit III- Chapter8(Full), Chapter 9(Full), Chapter 10(Full).

Unit IV- Chapter 14(Full), Chapter 15(Full).

Unit V - Chapter 16(Full), Chapter 18(Full), Chapter 19(Full).

**Reference Books:**

1. Mike Shema, **Web security Portable Reference**, Tata McGrawHill, New Delhi, 2003.
2. David Mackey, **Web Security for Network and System Administer**, Course Technology, Cengage Learning, USA, 2003.





**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**Course Structure – Semester wise CBCS (w.e.f.2017-2018)**

**Class : M.Sc (CS)**  
**Semester : III** **Hours : 04**  
**Sub code : 15PCSE33** **Credits : 04**

**SEMANTIC WEB**

**OBJECTIVES**

- To understand the concepts of semantic web technology.
- To appreciate the merits of semantic web over traditional web.
- To learn RDF and its taxonomy and ontology.
- To describe OWL and its usage in semantic web.
- To understand various technologies related to semantic web services.

**UNIT-I**

Traditional web to semantic web – WWW and its usage- meta data and its creation, addition in the web page; meta data tools - search engines for semantic web –search engine for web page mark up problem and query building problem.

**UNIT-II**

RDF and its basic elements-Why we need RDF-RDF triples-RDF tools-Fundamental rules of RDF- relationship between DC, and RDF and XML and RDF – RDFs, Taxonomy and Ontology: Core elements of RDF- ontology and taxonomy-inferencing based on RDF.

**UNIT-III**

The basics idea of Web ontology language– OWL to define classes- OWL to define properties-set operators-Three faces of OWL-Ontology Matching and Distributed Information- Validating OWL ontology: Development tools – Validate OWL Ontology – Understand Ontology.

**UNIT-IV**

Web services – web services standards – From web services to semantic web services – OWL-S: An Upper ontology –What is Upper Ontology? - Concept of OWL-S and its building blocks –Validating OWL-S – What are Semantics? – WSDL-S: WSDL-S - OWL-S to UDDI mapping.

**UNIT-V**

Swoogle- architecture, usage and examples of using Swoogle; FOAF –Explanation, vocabulary –creating FOAF documents –Markups: overview of semantic markup – Markup manually/Using Tools – issues.

**Text Book:**

1. LiyangYu ,Chapman & Hall/CRC, **Introduction to the Semantic Web and Semantic web Services**, Taylor & Francis group, CRC Press, USA, 2007.

Unit I - Chapter 1(Full), Chapter 2(Full).

Unit II - Chapter3(Full), Chapter4(Full).

Unit III- Chapter5(Full), Chapter6(Full).

Unit IV- Chapter11(Full), Chapter12(Full), Chapter13(Full).

Unit V - Chapter7(Full), Chapter8(Full).

**Reference Books:**

1. Johan Hjelm, **Creating the Semantic Web with RDF**, Wiley, Birmingham, 2001.
2. Jeffrey T. Pollock, **Semantic Web for Dummies**, Wiley, Birmingham, 2009.



**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**Course Structure – Semester wise CBCS (w.e.f.2017-2018)**

**Class : M.Sc (CS)**

**Semester : III**

**Sub code : 16PCSN31**

**Hours : 06**

**Credits : 04**

**MULTIMEDIA TECHNOLOGIES**

**OBJECTIVES**

- To learn the Multimedia components and its Uses.
- To understand the Compression technologies.
- To study overview of Text and Graphics.
- To learn simple animation using Flash.

**UNIT-I**

Introduction to Multimedia: Overview – What is Multimedia? – Components of multimedia – Multimedia Building blocks – Scope of Multimedia – Uses of Multimedia – Overview – Application purpose – Taxonomy – Examples – Electronic Performance Support Systems.

**UNIT-II**

Interaction technologies and Devices: Overview – Human Computer Interface – Input/output technologies – Combined Input-Output Device – Storage technologies – Communication and Network Technologies – Processing Technologies – Compression Technologies for Multimedia: Overview – The need for compression – Compression basics – Lossless/Lossy Compression techniques.

**UNIT-III**

Text: Overview – Implications of Digital text – Visual representation of text-Font – Digital representation of Characters-Character codes – Formatting Text – Hypertext and Hypermedia – Uses and Applications – Digital Image: Overview – Uses of images and Graphics – Image representation – Image Acquisition – Picture Display – Working with image.

**UNIT-IV**

Computer Graphics and Image editing: Overview – Uses of Computer Graphics – Representation of Computer graphics – 2D graphics transformation – Working with graphics – Basic Editing Steps – Digital Audio: Overview – Producing Digital Audio – Psychoacoustics – Representation of Audio files – Video and Animation: Overview – Digital Video – MPEG standards – MPEG video compression – Creating Digital Video – Animation – File formats.

**UNIT-V**

Creating Animation in Flash: Overview – Introduction to Flash Animation – Working with Timeline and Frame based Animation – Working with timeline and Tween based Animation – Understanding layers – Action script – Technology trends – Internet and WWW – Overview – Working with Internet and WWW – Network Architecture – Web

pages - Making web pages interactive and dynamic – Design considerations for the web  
– Ethical issues.

**Text Book:**

1. Banerji Ashok, Ananda Mohan Ghosh, **Multimedia Technologies**, TMH, New Delhi, 2009.

Unit I - Chapter 1(Full), Chapter 2(Full).

Unit II - Chapter3(Full), Chapter4(Full).

Unit III- Chapter5(Full), Chapter6(Full).

Unit IV- Chapter7(Full), Chapter8(Full), Chapter9(Full).

Unit V - Chapter 10(Full), Chapter12(Full).

**Reference Books:**

1. Tay Vaughan, **Multimedia Making It Work**, Ninth Edition, McGraw Hill, New Delhi, 2014.

2. Nick Vandome, **Flash MX in Easy Steps**, TBS, Kozhikode, 2002.



MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)

DEPARTMENT OF COMPUTER APPLICATIONS

Course Structure – Semester wise CBCS (w.e.f.2017-2018)

Class : M.Sc (CS)

Semester : IV

Sub code : 16PCSC41

Hours : 06

Credits : 05

### WEB TECHNOLOGY

#### OBJECTIVES

- To understand the Internet basics and Protocols.
- To learn HTML, CSS and XML.
- To study servlets, JSP and scripting language.

#### UNIT – I

**Introduction to HTML:** Information Files Creation – Web Server – Web Client/ Browser – HTML – Commonly used HTML Commands. **Lists:** Types of Lists. **Adding Graphics to HTML Documents:** Using the Border Attribute – Using the Width Attribute – Using the ALT Attribute.

#### UNIT – II

**Tables:** Introduction – Using the Width and Border Attribute – Using the Cellpadding Attribute – Using the Cellspacing Attribute – Using the Background Color Property – Using the Background Color Property – Using the Colspan and Rowspan Attributes. **Linking Document:** Links – Images as Hyperlinks. **Frames:** Introduction to Frames.

#### UNIT - III

**Introduction to Javascript:** Javascript in Web Pages – Javascript – Writing Javascript into HTML – Basic Programming Techniques – Operators and Expressions in Javascript – Javascript Programming Constructs Conditional Checking – User Defined Functions – Placing Text in a Browser – Dialog Boxes. **Forms used by a Web Site:** The Form Object – Other Built – In Objects in Javascript – User Defined Objects.

#### UNIT – IV

**PHP & HTML:** Getting Started. **The Basics of PHP:** Data Types – Variables – Constants – Here Documents – Operators – Arrays – Conditional Statements – Iterations.

## UNIT – V

**Functions:** User Defined Functions – Built-in Functions – PHP Server Variables – Working with Date and Time - Performing Mathematical Operations – Working with String Functions. **Working with Forms:** Form Elements – Adding Elements to a Form – Uploading Files to the Web Server Using PHP.

### TEXT BOOK(S)

1. Ivan Bayross, “**Web Enabled Commercial Applications Development Using... HTML, JavaScript, DHTML and PHP**”, 4th Revised Edition, BPB, New Delhi, 2010.

Unit I : Chapter 2 to Chapter 4.

Unit II : Chapter 5 to Chapter 7.

Unit III : Chapter 8, Chapter 10.

Unit IV: Chapter 16, Chapter 17.

Unit V : Chapter 18 to Chapter 19.

### Reference Book(s):

1. Jeffrey C. Jackson, **Web Technologies--A Computer Science Perspective**, Pearson Education, New Delhi, 2007.
2. Gopalan and J. Akilandeswari, “**Web Technology - A Developer’s Perspective**”, Second Edition, PHI, New Delhi, 2011.



**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**  
**DEPARTMENT OF COMPUTER APPLICATIONS**  
**Course Structure – Semester wise CBCS (w.e.f.2017-2018)**

**Class : M.Sc (CS)**

**Semester : III**

**Hours : 06**

**Sub code : 16PCSCP6**

**Credits : 05**

**WEB DESIGN - LAB**

1. Create an Application form using various text formats.
2. Create our COLLEGE website using HTML Frame.
3. Create Mark sheet printing using HTML.
4. Create style sheets with the style elements.
5. Create Calculator functions using java script.
6. String manipulation-using functions.
7. Add a simple script using Click event.
8. Create a format of a bill for the departmental store products.
9. Create Employee details using CSS.
10. Create our department details using CSS.
11. Create Payroll system using CSS.
12. Change the color of the old image to new image.
13. Adding Filter effects to an image.
14. Creating a banner.
15. Animation – Using text, image and sound.
16. Display current date, month, year and day of the week of the machine.
17. Create a Function to calculate 33% on the given salary.
18. Generate Fibonacci series for a given number.
19. Create a PHP code, which will retrieve the data captured by the HTML form, display the name of the form and also display the message Data Entered Successfully on the HTML form page after performing the validations.
20. Develop a PHP code, which will generate a Personnel Information form.



**MANNAR THIRUMALAI NAICKER COLLEGE (Autonomous)**

**DEPARTMENT OF COMPUTER APPLICATIONS**

**Course Structure – Semester wise CBCS (w.e.f.2017-2018)**

**Class : M.Sc (CS)**

**Semester : IV**

**Hours : 18**

**Sub code : 16PCSPR2**

**Credits : 12**

### **PROJECT WORK & VIVA – VOCE**

- This course is to train the student in executing a project and preparing the report of work done.
- The project work is to be carried for the entire semester and the report of work done is to be submitted to the college.

Total marks:100(Internal:40 marks, External :60 marks)

#### **Parameters:**

#### **For Internal Marks (40):**

|                                      |            |
|--------------------------------------|------------|
| Start-up Review                      | :5 Marks   |
| Design Review                        | :7.5 Marks |
| Implementation and validation Review | :7.5 Marks |
| Final Review                         | :10 Marks  |
| Overall Performance                  | :10 Marks  |

#### **For External Marks (60):**

|                                  |           |
|----------------------------------|-----------|
| Project Report                   | :20 Marks |
| Project work,Demo & Presentation | :30 Marks |
| Viva-Voce                        | :10 Marks |