Board of Studies Meeting

Department of Computer Technology

The minutes of the 18th meeting of the Board of Studies held on 8.11.24 at 9.00 am at C1-305.

Members Present:

S.No.	Name	Category
1.	Dr. M. Rathi, Professor and Head	Chairman
2.	Dr. V. Radha, Professor, Department of Computer Science, Avinashilingam Institute for Home Science and Higher Education for Women	Subject Expert
3.	Dr. L. Dhanabal, Associate Professor, Department of MCA, Kumaraguru College of Technology	Subject Expert
4.	Mr. R. Gopinath, Software Engineer Tech Mahindra, Tidel Park, Coimbatore	Industrial Expert
5.	Mrs. M. Reshma, Project Manager Wipro Technologies, Tidel Park, Coimbatore.	Alumni
6.	Dr. T. R. Anand, Assistant Professor (SG)	Member
7.	Dr. V. Manimekalai, Assistant Professor (SG)	Member
8.	Dr. B. Leelavathi, Associate Professor	Member
9.	Mr. R. Vijay Anand, Assistant Professor	Member
10.	Ms. S. Leena Sylviya, Assistant Professor	Member
11.	Ms. D. Kavipriya, Assistant Professor	Member
12.	Mrs. K.K. Nivethithaa, Assistant Professor	Member
13.	Dr. C. Mohanapriya, Assistant Professor	Member
14.	Dr. N. Kuppuchamy, Associate Professor and Head, Department of Tamil	Co-opted Member
15.	Dr. A. Hazel Verbina, Professor and Head i/c, Department of English	Co-opted Member
16.	Dr. R. Sowrirajan, Assistant Professor and Head Department of Mathematics	Co-opted Member
17.	Ms. M. Brindha, III CT- A	Student Representative

The HoD and Chairman of the Department of Computer Technology welcomed and introduced all the members and appreciated them for their continuous support and contribution for the development of academic standard and enrichment of the syllabus.

Further, the Chairman informed the inability of the following members to attend the meeting and requested to grant leave of absence.

1. Dr. P. B. Pankajavalli, Assistant Professor, Bharathiar University - University Nominee
2. Dr. M. Aruna – Associate Professor, Member

The items of the agenda were taken one by one for discussion and the following resolutions were passed.

Item 18.1

*To review and approve the minutes of the previous meeting held on **3.4.2024***

The chairman of the Board presented the minutes of the previous meeting held on **3.4.2024** and requested the members to approve. After brief discussion the following resolution was passed

Resolution:

Resolved to approve the minutes of the previous meeting held on 3.4.2024

Item 18.2:

To consider and approve the Syllabi for the II Semester for the students admitted during the academic year 2024-2025.

The chairman of the board presented the detailed scheme and syllabus for the II Semester for the students admitted from the academic year 2024-25. The members deliberated in detail and approved the syllabus.

After discussion the following resolution was passed.

Resolution:

Resolved to approve the syllabus for the students admitted for the academic year 2024-2025.

Item 18.3:

To consider and approve syllabi for the IV Semester for the students admitted during the academic year 2023-2024.

The Chairman presented the detailed scheme and syllabi for the IV semester to the students admitted from the academic year 2023-2024. The details of changes made are also presented as follows.

Changes Made:

Course Code	Course	Changes & Reason
234CT1A4CA	Computer Networks	Dr. Dhanabal suggested to move Wireless LAN concepts from Unit V to Unit II as it is more relevant to Data Link Layer.
234CT1A4CB	Web Application Development	Mr. Gopinath suggested to replace Case Study of Web application development using Open-Source tools instead of "Web application development using APEX" in Unit V as Open Source tools offer greater freedom to customize applications and adapt code to meet specific requirements.

IDC Offered :

Course Code	Course	Department
234CT1A4IB	Cyber Security	B.Com (PA)

After discussion the following resolution was passed.

Resolution:

Resolved to approve the syllabus with the above modifications for the IV Semester students admitted from the academic year 2023-24

Item 18.4

To consider and approve the syllabi for the VI Semester for the students admitted from the academic year 2022-23.

The Chairman presented the detailed scheme and syllabi for the VI semester for the students admitted from the academic year 2022-2023.

The details of changes made are also presented as follows.

Changes Made:

Course Code	Course	Changes & Reason
224CT1A6CB	Core: Blockchain Technology Essentials	Mr. Gopinath suggested to move "Ethereum concepts" from Unit III to Unit-II and "Hash function concepts" from Unit II to Unit-III as Ethereum is more relevant to the concept of decentralization.
224CT1A6SP	SEC Practical: Analytics using R	Mr. Gopinath suggested to include programs on parent-child structure concept while reading and writing data for easy data aggregation, organization and retrieval.
224CT1A6DB	DSE II: Cloud Computing and Virtualization	Dr. Dhanabal suggested to append "Case Study on Mobile Applications with IoT and Cloud" in Unit V to understand the types of cloud-based solutions developed in industries.
224CT1A6DC	DSE II: Fundamentals of Internet of Things	Dr. Radha suggested to discuss the "Arduino concepts" followed by the "Raspberry PI concepts" in Unit-IV as learning Arduino helps in understanding the basics of electronics and circuit design. Board suggested to change the title as "Fundamentals of Internet of Things".

New Courses Introduced:

Course Code	Course	Changes & Reason
224CT1A6DA	DSE II: Artificial Intelligence and Machine Learning Techniques	To provide comprehensive understanding of Artificial Intelligence concepts, Machine Learning algorithms, data handling and model optimization which enhances analytical thinking and problem-solving.
224CT1A6DD	DSE III: Big Data Tools and Technologies	To deliver essential skills and prepare professionals for careers in Data Analytics and Engineering.
224CT1A6DE	DSE III: Fault Tolerant Systems	To enable the understanding of designing reliable and resilient systems that continue to function effectively despite failures.
224CT1A6DF	DSE III: Edge Computing	To impart skills on understanding edge computing design patterns, data storage, security and analytics to work on projects involving automation and real-time data analysis.

Courses Removed:

Course Code	Course	Reason
194CT1A6DA	DSE II: Mobile Computing	"Edge Computing" course has been introduced to impart skills that are in high demand for roles in IoT development and network architecture.
194CT1A6DC	DSE II: Natural Language Processing	"Artificial Intelligence and Machine Learning Techniques" has been introduced as it is the broad field of developing algorithms to make the machines learn from data.
194CT1A6DD	DSE III: Network Security	"Fault Tolerant Systems" course has been introduced to provide insights to ensure high availability and continuity of service in networks. Key concepts of security are integrated into other relevant courses
194CT1A6DF	DSE III: Soft Computing	Introduced "Big Data Tools and Technologies" which is increasingly critical in the data-driven world. The concepts of soft computing have been incorporated in Artificial Intelligence and Machine Learning.

After discussion the following resolution was passed with the above changes and modifications.

Resolution:

Resolved to approve the syllabus with the above modifications and adapt the revised syllabus for the students admitted from the academic year 2022-2023.

Item 18.5

To consider and approve the courses offered by NPTEL that are equivalent to courses in curriculum in the III and V semesters.

The board discussed the courses offered by NPTEL that are equivalent to the courses offered in curriculum in the III semester for the students admitted for the academic year 2024-25 and V semester for the students admitted for the academic year 2023-24.

Resolution:

Resolved to approve the courses that are equivalent to courses offered by NPTEL in curriculum.

Item 18.6: *To consider and approve the self-study course offered in III semester for the students admitted in UG from academic year 2024-25 onwards.*

The board discussed and approved the existing self-study courses offered in III semester for the students admitted in UG from academic year 2024-25 onwards.

Resolution:

Resolved to approve the self-study course offered in III semester for the students admitted in UG from academic year 2024-25 onwards.

Item 18.7*: To approve the panel of examiners for question paper setting and evaluation of answer scripts for the even semester during the academic year 2024-2025.*

The Chairman presented the panel of examiners for question paper setting, question paper scrutiny and conduct of practical and theory examination are submitted to CoE for exam related work.

Resolution:

Resolved to approve the panel of examiners for question paper setting and evaluation of answer scripts for the even semester of the academic year 2024-2025

Item 18.8: *To consider and approve any other item brought forward by the Chairman and the members of the board.*

The board suggested to incorporate laboratory components for elective courses in future.

Finally, the Chairman thanked all the members for their cooperation and contribution in enriching the syllabus with active participation in the meeting and sought the same spirit in the future also. The meeting was closed with a formal vote of thanks proposed by Dr. M. Rathi, Chairman - Department of Computer Technology.

Date: 8.11.2024

8/11/24.

(Dr. M. Rathi)

BoS Chairman/HoD
Department of Computer Technology
Dr. N. G. P. Arts and Science College
Coimbatore – 641 048

Syllabus Revision

Faculty: Computer Science
Board : Computer Technology
Programme: B.Sc. Computer Technology
Semester : II
Course Code/ Name: 24CTU2CP – Programming in Data Structures and C++

S. No.	Old Syllabus	New Syllabus
1	~~Program to demonstrate class and member functions~~	Program to demonstrate static member variables and member functions.
2	~~Program to demonstrate the usage of constructors, destructors and inline member functions~~	Program to demonstrate overloading member functions and constructors.
3a	Program to implement friend function	
3b	Program to implement virtual function	
4	Programs to implement all types of inheritance	
5a	~~Program to apply string functions~~	Program to demonstrate operator overloading.
5b	Program to implement exception handling	
6a	Program to implement templates	
6b	~~Program to merge two files in to single file~~	
7	Program to convert infix expression to postfix expression	
8	Program to implement queue operations	
9	Program to implement any one linked list data structure	
10	Program that implements sorting algorithms	
11a	Program to implement searching techniques	
11b	Program to implement graph traversal	
12	Program to solve the single source shortest path problem using Dijkstra's algorithm.	

PERCENTAGE OF SYLLABUS REVISED: 20%

COURSE FOCUSES ON:

✓	Skill Development	✓	Entrepreneurial Development
✓	Employability		Innovations
	Intellectual Property Rights		Gender Sensitization
	Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Computer Science
Programme: B.Sc. Computer Technology
Course Code/ Name: 234CT1A4CA - Computer Networks

Board : Computer Technology
Semester: IV

Unit	Existing	Changes
1.	Introduction - Uses of Computer Networks- Types of Computer Networks: Broadband Access Networks-Mobile and Wireless Access Networks-Content Provider Networks- Transit Networks- Enterprise Networks. Network Technology-Examples of Networks-Network Protocols. Reference Model: The OSI Reference Model-TCP/IP Reference Model. Physical Layer: Guided Transmission Media-Wireless Transmission- Digital Transmission-Using the Spectrum for Transmission-Radio Transmission- Microwave Transmission	
2.	Data Link Layer Design Issues: Services provided to the Network Layer-Framing-Error Control-Flow Control- Error Detection and Correction. ~~Elementary Data Link Protocols: Basic Transmission and Receipt - Simplex Link-Layer Protocols-Improving Efficiency~~. Data Link Protocols in Practice: The Medium Access Control Sublayer: Multiple Access Protocols-Ethernet - Wireless LANs- Bluetooth - Data Link Layer Switching: Repeaters, Hubs, Bridges, Switches, Routers, and Gateways.	Data Link Layer Design Issues: Services provided to the Network Layer - Framing - Error Control - Flow Control - Error correcting codes - Error detecting codes - Medium Access Control Sub layer: Channel allocation problem - ALOHA - Carrier sense multiple access protocols - Data Link Layer Switching: Bridges, Switches, Routers. Wireless Networks: Introduction – Wireless Link and Network Characteristics - 802.11 Wireless LAN: Architecture - MAC Protocol.
3.	Network Topologies - Network Layer Design Issues - Routing Algorithms: Shortest Path Algorithm - Distance Vector Routing. ~~Quality of Service and Application: Packet Scheduling- Integrated Services- Differentiated Services.~~ Software-Defined Networking: The SDN Control Plane- The SDN Data Plane. The Network Layer in the Internet: The IP Version 4 Protocol- IP Addresses- IP Version 6-Internet Control Protocols.	Network Topologies - Services provided to the Transport Layer - Routing Algorithms: Shortest Path Algorithm - Distance Vector Routing - Link State Routing - Software-Defined Networking (SDN): Control Plane - Data Plane - Network Layer in the Internet: The IP Version 4 Protocol - IP Addresses - IP Version 6 - Internet Control Protocols.
4.	The Transport Service: Services provided to the upper layers ~~-Transport Service Primitives – Berkeley Sockets – Elements of Transport Protocols-Congestion Control.~~ The Internet Transport Protocols: UDP – Remote Procedure Call- Real-Time Transport Protocols. TCP: TCP Service Model- TCP Protocol – TCP Segment Header - TCP Connection Establishment and Release – TCP Sliding Window - TCP Congestion Control	Services provided to the upper layers - Transport Protocols: UDP - Remote Procedure Call - Real-Time Transport Protocols - TCP: Service Model - TCP Protocol, TCP Segment Header - TCP Connection Establishment and Release - TCP Sliding Window - TCP Congestion Control
5.	The DNS: The DNS Lookup Process - The DNS Name Space and Hierarchy - Name Resolution-Electronic Mail:Architecture and Services – Message Formats- Message Transfer.The World Wide Web:Architectural Overview - HTTP and	Domain Name System (DNS): DNS Lookup Process - DNS Name Space and Hierarchy - Name Resolution - Electronic Mail: Architecture and Services - Message Formats - Message Transfer - World Wide Web: Architecture - HTTP and HTTPS

	HTTPS -~~Content Delivery Networks- Peer-to-Peer Networks.~~	

PERCENTAGE OF SYLLABUS REVISED: 24%
COURSE FOCUSES ON:

✓	Skill Development	✓	Entrepreneurial Development
✓	Employability		Innovations
	Intellectual Property Rights		Gender Sensitization
	Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Computer Science
Programme: B.Com (PA)
Course Code/ Name: 234CT1A4IB – Cyber Security

Board: Computer Technology
Semester: IV

Unit	Existing	Changes
1.	Introduction - Modeling the Business Process- Information System Components -Information System Categories - ~~Individuals in the Information System- Development of Information Systems: Beginning with the users- Determining Need and Performance Expectations-Characteristics of good organizational IS Talent: Personal attributes – Organizational Environment- Stages in process design~~	Introduction to Cyber Security: Data and Information, Data Communication, Information Security, World Wide Web Security, Network Security, Cyber Security, Information Security to Cyber Security, Risk analysis in Cyber Security.
2.	Information Security: Introduction – Definition of security- Importance of Information Security - ~~Threats to information systems: Security Threat Source – Threat Agents- Threat Motivation- Threat intent- Information Assurance~~ – Cyber Security and Security Risk analysis. Application Security: Introduction - Database Security - E-Mail Security- Internet Security- Data Security considerations - Security Technology - Intrusion Detection - Access Control.	Cybercrime: Cybercrime and Information Security, Classifications, Legal Perspectives, Indian Perspective, Cybercrime and Indian ITA, Global Perspective. Cyber Offences: Introduction, Types of Attacks, Cyberstalking, Botnets, Attack Vector.
3.	Introduction to Security Threats: Virus- Worms- Trojan Horse - Bombs- TrapDoor- E-mail Spoofing - E-mail Virus- Macro Viruses - Malicious software ~~Security Threats to E-Commerce: Electronic Payment System – Credit/Debit Cards- Smart Cards- E-Money- Electronic Fund Transfer – E-Commerce Business Model – E-Commerce Advantages and Disadvantages- E-Commerce Security Systems – Electronic Cash- Digital Signature- Public Key Cryptography.~~	Cybercrime in wireless devices: Introduction, Trends in Mobility, Security Challenges posed by Mobile Devices, Attacks on Mobile Phones, Security Implications for Organizations - Tools and Methods used in Cybercrime: Password Cracking, Virus and Worms, Steganography, DoS and DDoS Attacks.
4.	Introduction –Developing Secure Information System - Key Elements of an Information Security Policy - ~~Information System Development Life Cycle- Application Security- Information Security Governance and Risk Management – Risk Management – Security Architecture and Design.~~	Phishing: Introduction, Methods, Techniques, Types of Phishing Scams, Phishing Toolkits and Spy Phishing - Identity Theft: Personally Identifiable Information, Types, Techniques.
5.	Introduction - Computer Security Policy Categories and Types - ~~Need of Security Policies -Security Policy Development – E-mail Security Policies – Policy Review Process – Corporate Policy – Sample Template of Cyber Security Policy.~~	Intrusion Detection System (IDS): Introduction, Confidentiality-Integrity-Availability, Functions, Characteristics, Types: Host-Based, Network-Based - Intrusion Detection and Prevention principles, Detection Methodologies. Case Study: Cheque Cashing Scam/Fraud Recovery Scam/Purchasing Goods and Services Scam.

PERCENTAGE OF SYLLABUS REVISED: 80%
COURSE FOCUSES ON:

✓	Skill Development	✓	Entrepreneurial Development
✓	Employability		Innovations
	Intellectual Property Rights		Gender Sensitization
	Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Computer Science
Programme:B.Sc. Computer Technology
Course Code/ Name: 224CT1A6SP – Analytics using R

Board: Computer Technology
Semester: VI

Ex. No	Existing	Changes
1.	R program to read the .csv file and display the content	Program using parent-child structure i) read data from a .CSV file ii) write data into a .JSON file
2.	Program to apply data explore functions summary(), str(), head(), tail(),view(),edit() to explore a dataset	i) Program to implement string functions ii) Program to create user defined functions
3.	~~R program to reorder a given data frame by column name~~	
4.	~~R program to find sum, mean and product of a vector~~	Program to implement descriptive statistics methods
5.	Program to represent vector values in the form of bar-plot, scatter plot and contour plot	
6.	R program to create a list containing a vector, a matrix, a list and update the last element.	
7.	Program to create Logistic Regression model using Iris dataset.	
8.	Program to implement the operations of loading, reading and merging in data frames	
9.	Demonstrate the relationship model between predictor and response variables. The predictor vector stores the heights of persons, whereas the Response vector stores the weights of persons. Print the summary of the relationship and determine the weights of new persons. Visualize the regression graphically.	Program to implement linear regression model for a dataset
10.	~~Program to demonstrate generic functions for fitted model objects~~	Program to explore data visualization commands
11.	Program to implement Linear Filtering using the filter() command	
12.	~~Program to determine the Standard Deviation~~	Program to decompose seasonal and non-seasonal time series data

PERCENTAGE OF SYLLABUS REVISED: 30%

COURSE FOCUSES ON:

✓	Skill Development	✓	Entrepreneurial Development
✓	Employability		Innovations
	Intellectual Property Rights		Gender Sensitization
	Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Computer Science **Board** : Computer Technology
Programme: B.Sc. Computer Technology **Semester:** VI
Course Code/ Name: 224CT1A6DB – Cloud Computing and Virtualization

Unit	Existing	Changes
6.	~~Overview of Cloud Computing:~~ Introduction - Definition-~~History- Characteristics~~- Advantages and Disadvantages Cloud Service Models-Cloud Computing Deployment-Cloud Computing Companies	Introduction - Applications - Intranets and Cloud - Cloud Service Providers - Benefits - Limitations - Security Concerns - Regulatory Issues. Hardware and infrastructure: Clients, Network - Cloud Platforms - Web APIs
7.	Cloud Architecture and Applications: Cloud Architecture-Front End - Back End - Components of Cloud Computing Architecture-Working of Cloud Computing-Applications of Cloud Computing Scalability and Redundancy-Key features of Cloud Scalability-Types of Scalability-Benefits of Scalability-Concepts and benefits of Redundancy	
8.	Cloud Services: Cloud Service Introduction - Benefits- Types of Cloud Service models: Software as a Service-Platform as a Service-Infrastructure as a Service-Network as a Service Cloud Deployment Models: Public Cloud-Hybrid Cloud-~~Multi Cloud~~	Cloud Services: Cloud Service Introduction - Benefits- Types of Cloud Service models: Software as a Service-Platform as a Service-Infrastructure as a Service-Network as a Service. Cloud Deployment Models: Public Cloud - Private Cloud - Community Cloud - Hybrid Cloud.
9.	Virtualization- Definition- Features-Benefits-Difference between Cloud Computing and Virtualization-Types of Virtualization-Hardware Virtualization-Software Virtualization-Server Virtualization-Storage Virtualization	
10.	Data Storage and Security: Cloud Storage basics-Types of Cloud Storage-Advantages and risks of Cloud Storage-Infrastructure-Data protection process-Cloud Security- Measures and controls in Cloud Security Cloud Operation and Challenges: Definition - Objectives - Management- Benefits-Challenges related to Cloud Computing	Cloud Storage basics - Types of Cloud Storage - Advantages and risks of Cloud Storage - Infrastructure - Data protection process - Cloud Security - Measures and controls in Cloud Security - Cloud Operation and Challenges: Defining Cloud operations - Management - Benefits - Challenges - Mobile Cloud Computing and Applications. Case Study: Mobile Applications with IoT and Cloud

PERCENTAGE OF SYLLABUS REVISED: 16%
COURSE FOCUSES ON:

✓	Skill Development	✓	Entrepreneurial Development
✓	Employability		Innovations
	Intellectual Property Rights		Gender Sensitization
	Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Computer Science
Board: Computer Technology
Programme: B.Sc. Computer Technology
Semester: VI
Course Code/ Name: 224CT1A6DC – Fundamentals of Internet of Things

Unit	Existing	Changes
1.	IoT : Introduction - Physical design of IoT - Logical design of IoT: IoT Functional blocks - IoT Communication models - IoT Communication APIs - IoT Enabling Technologies: Wireless Sensor Networks - Cloud Computing - Big Data Analytics. IoT Levels and deployment.	
2.	Introduction - Home Automation - Cities - Environment - Energy - Retail – Logistics- Agriculture - Industry - Health and Lifestyle IoT and M2M: Introduction - M2M - Difference between IoT and M2M – Software Defined Networking for IoT - Network Function Virtualization for IoT.	
3.	IoT Design Methodology: Specifications: Purpose & Requirements - Process -Domain Model - Information Model - Service - IoT Level - Functional View -Operational view - Device and Component Integration - Application Development. Case Study: IoT System for Weather Monitoring	
4.	IoT Device: Introduction - Building blocks - Exemplary device: Raspberry Pi – About the board - Controlling LED with Raspberry Pi. Arduino: Overview - Board description - Installation - Program Structure – Blinking LED with Arduino - Humidity Sensor with Arduino.	
5.	~~Data Analytics: IoT Data Analytics Challenges – Data Acquiring – Organizing inIoT/M2M – Supporting Services: Computing Using a Cloud Platform for IoT/M2MApplications/Services – Everything as a Service and Cloud Service Models – CaseStudy illustrating IoT Design.~~	IoT Security: Threats - Vulnerability - Risks - Attacks - Safety and Security design - Security products and services - Secure IoT System Implementation Lifecycle: Implementation and Integration - Operations and Maintenance - Dispose.

PERCENTAGE OF SYLLABUS REVISED: 20%
COURSE FOCUSES ON:

✓	Skill Development	✓	Entrepreneurial Development
✓	Employability	✓	Innovations
	Intellectual Property Rights		Gender Sensitization
	Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Computer Science **Board:** Computer Technology
Programme: B.Sc. Computer Technology **Semester:** VI
Course Code/ Name:224CT1A6DA – Artificial Intelligence and Machine Learning Techniques

Unit	Existing
1.	Artificial Intelligence: Introduction - History - Intelligent Agents: Agents and Environments - Nature of Environments - Structure of Agents: Agent Programs - Simple reflex agent - Model based reflex agent - Goal based agents - Utility based agents - Learning agents.
2.	Problem Solving : Problem solving agents – Toy problem – Real world problems – Searching strategies: Breadth first search - Depth first search (DFS) - Depth limited search - Iterative deepening DFS - Greedy best first search - A* search.
3.	Machine Learning : Machine Learning (ML): Introduction – ML categories: Supervised learning, Unsupervised learning, Reinforcement learning. ML Toolbox: Data - Infrastructure - Algorithms - Data Scrubbing: Feature selection - Row compression - One-hot encoding - Binning - Missing data - Setting the data.
4.	Algorithmic Learning : Learning Decision Trees - Evaluating and choosing the best hypothesis - Univariate linear regression - Multivariate linear regression - Support Vector Machines - Ensemble learning - Case study.
5.	Neural Networks and Applications of AI: Artificial Neural Networks: Neural Network Structures - Single layer feed forward neural networks - Multilayer feed forward neural networks - Learning in multilayer networks - Applications of AI: Business Intelligence - Healthcare - Education - Finance - Manufacturing. Case Study: Large Language Models

PERCENTAGE OF SYLLABUS REVISED: 100%
COURSE FOCUSES ON:

✓	Skill Development	✓	Entrepreneurial Development
✓	Employability	✓	Innovations
	Intellectual Property Rights		Gender Sensitization
	Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Computer Science **Board:** Computer Technology
Programme: B.Sc. Computer Technology **Semester:** VI
Course Code/ Name: 224CT1A6DD – Big Data Tools and Technologies

Unit	Existing
6.	Big Data: Introduction - Classification of data - Big Data Characteristics and Types - Scalability and Parallel Processing - Data Architecture design - Data Source - Data Pre-Processing and Storing - Big data storage - Big data platform - Big data analytics.
7.	Hadoop and MapReduce: Hadoop Overview - Hadoop Distributed File System (HDFS) - Processing data with Hadoop - Hadoop Yarn - Hadoop Ecosystem - MapReduce: Mapper - Reducer - Combiner - Partitioner - Searching - Sorting.
8.	Hive and Pig: Hive: Introduction - Architecture - Data types - File formats - Hive Query Language (HQL) - User defined functions - Pig: Introduction - Pig on Hadoop - Pig Latin: Statements, keywords, identifiers - Data types - Running Pig - Execution modes - Relational Operators.
9.	NoSQL: Introduction - NoSQL Data store - NoSQL Data Architecture patterns: Key-Value store - Document store - Tabular Data - Object data store - Graph database - Using NoSQL to manage Big data – Shared Nothing Architecture.
10.	MongoDB: Introduction - Using JSON - Unique key generation - Dynamic queries - Storing binary data - Replication - Sharding - Updation - Create database - Drop database - Data types - MongoDB query language: Insert, Save, Update, Remove, Find - Case study.

PERCENTAGE OF SYLLABUS REVISED: 100%
COURSE FOCUSES ON:

✓	Skill Development	✓	Entrepreneurial Development
✓	Employability		Innovations
	Intellectual Property Rights		Gender Sensitization
	Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Computer Science
Board: Computer Technology
Programme: B.Sc. Computer Technology
Semester: VI
Course Code/ Name: 224CT1A6DE – Fault Tolerant Systems

Unit	Existing
1.	Fault Tolerance: Introduction - Fault classification - Types of Redundancy - Measures of Fault Tolerance - Hardware Fault Tolerance: The Rate of Hardware Failures - Failure Rate, Reliability, and Mean Time to Failure - Canonical and Resilient Structures: Series and Parallel Systems, Non-Series/Parallel Systems - Reliability Evaluation Techniques - Fault tolerance processor level techniques - Byzantine Failures.
2.	Information Redundancy : Coding: Parity Codes, Checksum, M-of-N codes - RAID Level 1 - RAID level 2 - RAID level 3 - RAID level 4 - RAID level 5 - Non-Hierarchical Data Replication - Hierarchical Data Replication.
3.	Fault Tolerant Networks: Measures of Resilience: Graph-Theoretical Measures - Computer Networks Measures - Network topologies and Resilience: Multi-stage and Extra-stage networks - Crossbar networks - Mesh networks - Hypercube networks - Loop networks - Fault tolerant routing: Hypercube fault tolerant routing - Origin based routing.
4.	Software Fault Tolerance: Acceptance Tests - Single-Version Fault Tolerance: Wrappers, Software Rejuvenation - N-Version Programming: Consistent Comparison Problem, Version Independence - Recovery Block Approach: Basic Principles, Success Probability Calculation, Distributed Recovery Blocks.
5.	Software Reliability Models: Jelinski–Moranda Model - Littlewood–Verrall Model - Fault-Tolerant Remote Procedure Call - Checkpointing: Checkpoint Level – Checkpointing in distributed systems: Domino Effect and Livelock - Time based synchronization - Message logging.

PERCENTAGE OF SYLLABUS REVISED: 100%
COURSE FOCUSES ON:

✓	Skill Development	✓	Entrepreneurial Development
✓	Employability		Innovations
	Intellectual Property Rights		Gender Sensitization
	Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Syllabus Revision

Faculty: Computer Science
Board: Computer Technology
Programme: B.Sc. Computer Technology
Semester: VI
Course Code/ Name: 224CT1A6DF – Edge Computing

Unit	Existing
1.	Edge Computing: Definition - Characteristics - Scenarios - Edge Computing Architecture - Networking for Edge Computing - Edge devices - Fleet Management - Edge Computing Interfaces: Middleware - Application Interfaces.
2.	Edge to cloud: Data Collection patterns: Messaging, Ingress endpoints - Remoting patterns - Compute Offloading patterns - Cloud to Edge: Edge Acceleration patterns - Edge Functions patterns - Cloud compute stack on Edge - Edge native compute stack: Datacenters - Template based compute stack - Multi-access Edge Computing framework.
3.	Kubernetes on Edge: Kubernetes Cluster - Federation Topologies - Securing Kubernetes Cluster - Edge Native Applications: Autonomous Bootstrapping, Adaptive to Environmental changes, Edge high availability, End-to-End security, Manageability - One Stack Multiple Perspective (OSMP) Model.
4.	Data Security - Data Encryption methods: Identity based, Attribute-based, Proxy Re-Encryption, Function based, Honey, Search based and Homomorphic - Authentication - Privacy-Preserving Schemes - Edge-based Attack Detection and Prevention
5.	Edge Analytics: Data Analytics - Types of Data Analytics - Edge Data Analytics - Architecture of Edge Analytics - Machine Learning for Edge Devices. Edge computing Use cases: Autonomous Vehicles - Smart Cities - Industrial Automation - Network Functions - Healthcare. Case Study: Blood Pressure Monitor to predict Hypotension in Edge Server - Detect Body Heat Index in Edge Server.

PERCENTAGE OF SYLLABUS REVISED: 100%
COURSE FOCUSES ON:

✓	Skill Development	✓	Entrepreneurial Development
✓	Employability		Innovations
	Intellectual Property Rights		Gender Sensitization
	Social Awareness/ Environment		Constitutional Rights/ Human Values/ Ethics

Dr. N.G.P. ARTS AND SCIENCE COLLEGE

(An Autonomous Institution, Affiliated to Bharathiar University, Coimbatore)
(Approved by Government of Tamil Nadu & Accredited by NAAC with A++ Grade (3rd Cycle - 3.64 CGPA)
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ATTENDANCE OF THE EIGHTEENTH BOARD OF STUDIES MEETING

Faculty: Computer Science **Board: Computer Technology**

VENUE : C1 Block-Room Number:305
DATE : 8.11.2024
TIME : 9:00 a.m.

The following members were present for the Board of Studies meeting

S.NO.	NAME	DESIGNATION	SIGNATURE
1.	Dr. M. Rathi Associate Professor and Head	Chairman	
2.	Dr. P. B. Pankajavalli Assistant Professor Department of Computer Science Bharathiar University, Coimbatore-46	Member (Subject Expert) (Nominated by Vice Chancellor)	-ABSENT-
3.	Dr. V. Radha Professor, Department of Computer Science School of Physical Sciences and Computational Sciences Avinashilingam Institute for Home Science and Higher Education for Women Coimbatore- 641043	Member (Subject Expert) (Nominated by Academic Council)	08/11/24
4.	Dr. L. Dhanabal Associate Professor, Department of MCA Kumaraguru College of Technology Athipalayam Rd, Chinnavedampatti Coimbatore- 641049	Member (Subject Expert) (Nominated by Academic Council)	8/11/24.
5.	Mr. R. Gopinath Software Engineer Tech Mahindra, TidelPark, Coimbatore	Member (Industrial expert)	8/11/24
6.	Ms. M. Reshma Project Manager, Senior Software Testing Engineer Wipro Technologies, Tidel Park, Coimbatore.	Alumni	

Contd...

S.NO.	NAME	DESIGNATION	SIGNATURE
7.	Dr. N. Kuppuchamy	Co-opted Member (Tamil)	
8.	Dr.A.Hazel Verbina	Co-opted Member (English)	
9.	Dr. R. Sowrirajan	Co-opted Member (Mathematics)	
10.	Ms.M.Brindha	Student Representative	
11.	Dr. T. R. Anand Assistant Professor (SG)	Member	
12.	Dr. V. Manimekalai Assistant Professor (SG)	Member	
13.	Dr. B. Leelavathi Associate Professor	Member	
14.	Dr. M. Aruna Assistant Professor	Member	-ABSENT-
15.	Mr. R. Vijay Anand Assistant Professor	Member	
16.	Ms.Leena Sylviya Assistant Professor	Member	
17.	Ms.D. Kavipriya Assistant Professor	Member	8/11/24
18.	Mrs.K.Nivethithaa Assistant Professor	Member	K.R.Nivethithaa
19.	Dr.C.Mohanapriya Assistant Professor	Member	

Date :8.11.2024

(Dr. M. Rathi)

BoS Chairman/HoD
Department of Computer Technology
Dr. N. G. P. Arts and Science College
Coimbatore - 641 048

Academic Council * CHAIRMAN * Dr.N.G.P. Arts and Science College