



# ALAGAPPA UNIVERSITY

(A State University Established in 1985)  
Karaikudi - 630003, Tamil Nadu, India



<b>2017</b>  Accredited with A+ Grade by NAAC (CGPA: 3.84)	<b>2018</b>  MHRD Govt. of India Graded as Category - 1 & Granted Autonomy	<b>2018</b>  UGC University Grants Commission	<b>2018</b>  MHRD GOVERNMENT OF INDIA Swachh Campus Rank : 4	<b>2019</b>  NIRF NATIONAL INSTITUTIONAL RANKING FRAMEWORK Rank : 25	<b>2019</b>  QS India Rank : 20 BRICS Rank : 104 Asia Rank : 216
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## ALAGAPPA INSTITUTE OF SKILL DEVELOPMENT



### M.Voc., SOFTWARE DEVELOPMENT

[Choice Based Credit System (CBCS)]

[For the candidates admitted from the academic year 2019-2020]

**M.Voc. PROGRAMME**  
in  
**SOFTWARE DEVELOPMENT**

*under*  
**CHOICE BASED CREDIT SYSTEM (CBCS)**  
&  
**CREDIT FRAMEWORK FOR SKILL DEVELOPMENT (CFSD)**

**PROGRAMME STRUCTURE**  
(2019-'20 Batch onwards)



**ALAGAPPA INSTITUTE OF SKILL DEVELOPMENT**  
**ALAGAPPA UNIVERSITY**

(Accredited by NAAC with A+ Grade (CGPA 3.64) in the Third Cycle  
Graded as Category-I University and Granted Autonomy by MHRD - UGC  
2019: QS India Rank – 20, QS BRICS Rank – 104, QS ASIA Rank – 216)

**KARAIKUDI – 630003**  
**TAMIL NADU**



## PROGRAMME OBJECTIVES

- To offer skill / vocational curriculum adhere to the National Occupational Standards (NOS) towards improving the employability of the youth and industrial revolution of the Country.
- To create strong linkage with respective Sector Skill Council (SSC), Industries and academia to offer and vet the progress of the pedagogical process of Skill Vocational training

## PROGRAMME SPECIFIC OBJECTIVES

- To inculcate the students with Technical, Generic and Industry specific skills related to Software Development for better employment possibilities and to open avenues for self-employment.
- To empower the students in terms of career goals, decision making and livelihood options.

## OUTCOME

The curriculum of the M.Voc. (Software Development) Programme enables the students to become any of the below mentioned Job Roles:

- Software Engineer
- Web Developer
- UI designer

The above-mentioned job roles are designed by the SSC-NASSCOM. It is an authorized Sector Skill Council (SSC) by NSDC for evolving and assessing proficiencies of skills of trainees for the IT/ITeS.

### I. ELIGIBILITY:

#### 1) For Admission

A candidate who is a graduate of this University or any recognized University in the main subject / subjects as given below against each or who has passed an examination accepted by the Syndicate, as equivalent thereto.

M.Voc., Software Development	B.Voc., degree in Software Development / B.Sc., degree in Computer Science/ Information Technology / Electronics / B.C.A. / B.Com. (Computer Applications) / any UG degree with core / allied papers related to Software Development / Computer Science / Information Technology / Computer Applications or any qualification equivalent thereto in 10+2+3 pattern with 55% marks in Part III (for SC/ST candidates 50%)
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**2) FOR THE DEGREE**

The candidates shall have subsequently undergone the prescribed programme of study in Alagappa Institute of Skill Development, Alagappa University for not less than two academic years comprising 4 semester, passed the examinations prescribed and fulfill such conditions as have been prescribed therefore.

**III. DURATION**

The Programme is for a period of two years. Each year shall consist of two semesters viz. Odd and Even semesters. Odd semesters shall be from June / July to October / November and Even semesters shall be from November / December to April / May. There shall be not less than 90 working days which shall comprise 450 teaching clock hours for each semester (exclusive of the days for the conduct of University end-semester examination).



**ALAGAPPA INSTITUTE OF SKILL DEVELOPMENT**  
**ALAGAPPA UNIVERSITY, KARAIKUDI.**  
 SYLLABUS UNDER CBCS PATTERN (w.e.f. 2019-20)  
**M.Voc., SOFTWARE DEVELOPMENT**

Degree	Sem	Subject code	Course Name	Credits Skills(S)/ General (G)		Theory/ Practical	Hrs./ Week	Marks		Total
				S	G			Int.	Ext	
Post-Graduate Diploma in Software Development	I	9MS1C1	Core – I – Programming with Java	5	--	T	5	25	75	100
		9MS1C2	Core – II – Software Engineering	4	--	T	4	25	75	100
		9MS1P1	Core-III- Programming with Java - Lab	5	--	P	5	25	75	100
		9MS1P2	Core – IV – Data structures and Analysis of Algorithms using C++ - Lab	4	--	P	4	25	75	100
		9MS1G1	General – I – Digital Electronics & Computer System Architecture	--	4	T	4	25	75	100
		9MS1G2	General – II – Mathematical logics for Software Development	--	4	T	4	25	75	100
			Elective – I	--	4	T	4	25	75	100
		<b>Sub-Total</b>	<b>18</b>	<b>12</b>						
		<b>Total for Semester - I</b>	<b>30</b>			<b>30</b>	--	--	<b>700</b>	
	II	9MS2C1	Core – V – Principles of Computer Network Security	4	--	T	4	25	75	100
		9MS2C2	Core – VI – Fundamental of Operating System	4	--	T	4	25	75	100
		9MS2P1	Core – VII – .Net Technology - Lab	4	--	P	5	25	75	100
		9MS2P2	Core – VIII – Python - Lab	3	--	P	4	25	75	100
		9MS2MP	Core – IX – Mini-Project	3	--	P	--	100	--	100
			Non-major Elective Course – I	--	2	-	3	25	75	100
			Elective – II – Lab	--	5	P	5	25	75	100
			Elective – III @	--	5	P	5	25	75	100
			Self-Learning Course (MOOCs) – I %	--	(E)	-	--	--	--	--
			<b>Sub-Total</b>	<b>18</b>	<b>12</b>					
		<b>Total for Semester – II</b>	<b>30</b>			<b>30</b>	--	--	<b>800</b>	
M.Voc. Degree in Software Development	III	9MS3C1	Core – X – Programming in PHP	4	--	T	5	25	75	100
		9MS3C2	Core – XI – Data Mining and Data Warehousing	4	--	T	4	25	75	100
		9MS3C3	Core – XII – Fundamentals of AI & Virtual Reality	4	--	T	4	25	75	100
		9MS3P1	Core – XIII – Programming in PHP Lab	4	--	P	4	25	75	100
		9MS3C4	Core – XIV – Finishing Skills in Software Development #	2	--	P	--	100	--	100
			Non-major Elective Course – II	--	2	-	3	25	75	100
			Elective – IV	--	5	T	5	25	75	100
			Elective – V – Lab	--	5	P	5	25	75	100
			Self-Learning Course (MOOCs) – II%	--	(E)	-	--	--	--	--
		<b>Sub-Total</b>	<b>18</b>	<b>12</b>						
		<b>Total for Semester – III</b>	<b>30</b>			<b>30</b>	--	--	<b>800</b>	
	IV	9MS4G1	Principles of Digital Marketing	-	6	T	6	25	75	100
		9MS4G2	Fundamentals of industry 4.0	-	6	T	6	25	75	100
9MS4MR		Core – XV – Industrial Internship with Project Work	18	-	P	18	150	50	200	
	<b>Total for Semester – IV</b>	<b>18</b>	<b>12</b>		<b>30</b>	-	--	<b>400</b>		
	<b>Grand total</b>	<b>120</b>			<b>120</b>	-	--	<b>2700</b>		



**Elective – I**

- |   |   |        |
|---|---|--------|
| 1. Fundamentals of Programming and C              | – | 9MS1E1 |
| 2. Fundamentals of Data Structures and Algorithms | – | 9MS1E2 |
| 3. Object-Oriented Programming with C++           | – | 9MS1E3 |

**Elective – II – Lab**

- |                                     |   |        |
|-------------------------------------|---|--------|
| 1. RDBMS - Lab                      | – | 9MS2E1 |
| 2. Web Graphics – Lab               | – | 9MS2E2 |
| 3. Web Designing Technologies - Lab | – | 9MS2E3 |

**Elective – III**

- |   |   |        |
|---|---|--------|
| 1. Corporate Etiquette Skills             | – | 9MV2E4 |
| 2. Competitive Examination Skills         | – | 9MV2E5 |
| 3. Soft Skills and Entrepreneurial Skills | – | 9MV2E6 |

**Elective – IV**

- |                                  |   |        |
|----------------------------------|---|--------|
| 1. Principles of IoT             | – | 9MS3E1 |
| 2. Principles of Compiler Design | – | 9MS3E2 |
| 3. Cloud Computing               | – | 9MS3E3 |

**Elective – V – Lab**

- |  |   |        |
|--|---|--------|
| 1. Distributed programming with J2EE - Lab | – | 9MS3E4 |
| 2. Software Design - Lab                   | – | 9MS3E5 |
| 3. XML and Android programming - Lab       | – | 9MS3E6 |

**Industrial Internship with Project Work**

- |                               |   |           |
|-------------------------------|---|-----------|
| Project Evaluation (Internal) | – | 150 Marks |
| Viva – voce (External)        | – | 50 Marks  |

# Fully-internal Course – Examination will be conducted internally

@ External Examination will be conducted as Viva-voce Examination

% Self-Learning Course – MOOCs – Extra Credits (E) – Extra credits earned through MOOCs

**Non-Major Elective Courses (PG):**

Sem.	Course Code	Non-major Elective Course Name	Credits	Hrs./ Week	Marks		Total
					Int.	Ext.	
II	9MS2N1	Non-major Elective – I : Web Designing	2	3	25	75	100
III	9MS3N2	Non-major Elective – II : Principles of Digital Marketing	2	3	25	75	100





Skill Subject

Theory

Semester - I			
Course code: 9MS1C1	Core – I – Programming with Java	Credits: 5	Hours: 5
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To understand and familiar with Object-Oriented concepts and the power of Java language in Internet programming.</li> <li>➤ To impart the facilities of Java language such as, Applets, Exception handling and I/O streams.</li> </ul>		
<b>Unit I</b>	Introduction: Introduction to Java – Java and Internet – Byte codes – Features of Java – Java development Environment – Java character set – Operators – Control statements – Simple programs.		
<b>Unit II</b>	Object Orientation in Java: Classes – Methods – Inheritance – Packages – Interfaces – programming examples. Exception Handling: Fundamentals – Exception types – Try catch block – throw, throw clause – finally clause – User defined Exceptions.		
<b>Unit III</b>	Threads: Thread model – Thread priorities – Runnable interface – creating a thread, Multiple threads – Synchronization – Inter-thread communication – Suspending, Resuming and stopping threads.		
<b>Unit IV</b>	Input/Output: String handling – Exploring java IO Package. Applets: Applet basics – AWT classes – Window fundamentals – Working with frame windows – graphics – AWT controls – Swing – Layout Managers – Menus – Event Handling.		
<b>Unit V</b>	Java Networking: Basics – Socket overview – TCP/IP client sockets, TCP/IP server sockets– URL – Datagram sockets. Concepts of Advanced Java Programming: JAVA SCRIPTS – Servlets – JDBC – EJB – JSP.		
<b>Reference and Text Book:-</b>			
Cay S. Horstmann. (2012). <i>Core Java Volume I—Fundamentals</i> . (9 <sup>th</sup> ed.). Prentice Hall.			
Chitra A. (2002). <i>Internet and Java Programming</i> ISTE.			
Herbert Schildt. (2017). <i>JAVA – The complete reference</i> . (10 <sup>th</sup> ed.). New Delhi: Tata McGraw Hill.			
Walter Savitch. (2014). <i>Java: An Introduction to Problem Solving and Programming</i> . (8 <sup>th</sup> ed.)			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ understand the knowledge of programming skills in java</li> <li>➤ comprehend and construct applications using java language</li> </ul>		



Skill Subject

Theory

Semester - I			
Course code: 9MS1C2	Core – II – Software Engineering	Credits: 4	Hours: 4
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To develop the fundamental principles of Digital electronics such as, Number Systems, Logic Circuits, Boolean algebra and Digital circuits</li> <li>➤ To understand the principles of CPU organization and evolution of programming techniques of Digital Computer systems.</li> </ul>		
<b>Unit I</b>	Introduction: The Software Engineering Discipline - Software Development Projects - Emergence of Software Engineering - Software Life Cycle Models: Classical Waterfall Model - Iterative Waterfall Model - Prototyping Model - Spiral Model.		
<b>Unit II</b>	Software Project Management: Responsibilities of a Software Project Manager - Project Planning - Metrics for Project Size Estimation - Project Estimation Techniques - Empirical Estimation Techniques - COCOMO - Risk Management - Requirements Analysis and Specifications: Requirements Gathering and Analysis - SRS.		
<b>Unit III</b>	Software Project Management: Responsibilities of a Software Project Manager - Project Planning - Metrics for Project Size Estimation - Project Estimation Techniques - Empirical Estimation Techniques - COCOMO - Risk Management - Requirements Analysis and Specifications: Requirements Gathering and Analysis - SRS.		
<b>Unit IV</b>	Coding and Testing: Coding - Software Documentation - Testing - Unit Testing - Black-Box Testing - White-Box Testing - Debugging - Integration Testing - System Testing - Software Reliability and Quality Management: Software Reliability - Software Quality and Management System.		
<b>Unit V</b>	Computer Aided Software Engineering: Case Environment - Characteristics of CASE Tools - Maintenance: Characteristics of a Software Maintenance - Software Reverse Engineering - Estimation of Maintenance Cost - Software Reuse: A Reuse Approach.		
<b>Reference and Text Book:-</b>			
K.K.Aggarwal & Yogesh Singh. (2005). <i>Software Engineering</i> . (2 <sup>nd</sup> ed.). New Age International Publishers.			
Rajib Mall. (2018). <i>Fundamentals of Software Engineering</i> . (5 <sup>th</sup> ed.). NewDelhi: PHI Learning, Private Limited.			
Roger S. Pressman. (2009). <i>Software Engineering – A Practitioner's Approach</i> , (7 <sup>th</sup> ed.). McGraw Hill International.			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ design and conduct experiments, as well as to analyze and interpret data</li> <li>➤ develop a system component, or process to meet desired needs within realistic constraints</li> </ul>		





Skill Subject

Practical / Viva- Voce

<b>Semester-I</b>			
<b>Course Code: 9MS1P1</b>	<b>Core III- Programming with Java - Lab</b>	<b>Credits : 5</b>	<b>Hrs / Week : 5</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To impart the knowledge about Java programs to solve problems and able to debug and test Java programs</li> <li>➤ To understand Java libraries, Interfaces, Packages, Threads and I/O streams, Applets and JDBC and to effectively use them in Distributed / Internet programming environment.</li> </ul>		
<ol style="list-style-type: none"> <li>1. Demonstrate the String Operations</li> <li>2. Demonstrate Package Creation and use in Program</li> <li>3. Demonstrate Inner Class</li> <li>4. Demonstrate Inheritance</li> <li>5. Demonstrate 2D Shapes on Frames</li> <li>6. Demonstrate Text and Fonts</li> <li>7. Demonstrate Event handling for various types of Events</li> <li>8. Multicasting Techniques</li> <li>9. Demonstrate the use of Dialog Box</li> <li>10. Create a Dialog Box</li> <li>11. Create a Tool Bar, Menu &amp; Popup Menu</li> <li>12. Implement File Handlings</li> <li>13. Demonstrate Applet Programming</li> <li>14. Demonstrate JDBC on Applet/Application</li> <li>15. Demonstrate Multithreading</li> </ol>			
<b>Outcomes</b>	<p>After Completing this course, the students are able to:</p> <ul style="list-style-type: none"> <li>➤ understand the concept of Object Oriented Programming &amp; Java Programming Constructs.</li> <li>➤ design the applications of Java &amp; Java applet.</li> </ul>		



<b>Semester-I</b>			
<b>Course Code: 9MS1P2</b>	<b>Core IV- Data Structures and Analysis of Algorithms Using C++ - Lab</b>	<b>Credits : 4</b>	<b>Hrs / Week : 4</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>• To impart the knowledge about various data structures</li> <li>• To enable the students to perform various operations on data structures using C++</li> </ul>		
<ol style="list-style-type: none"> <li>1. Write a program that implement following operations (using separate functions) on a linear array:               <ul style="list-style-type: none"> <li>• Insert a new element at end as well as at a given position</li> <li>• Delete an element from a given whose value is given or whose position is given</li> <li>• To find the location of a given element</li> <li>• To display the elements of the linear array</li> </ul> </li> <li>2. Write a program that maintains a linear linked list whose elements are stored in on ascending order and implements the following operations (using separate functions):               <ul style="list-style-type: none"> <li>• Insert a new element</li> <li>• Delete an existing element</li> <li>• Search an element</li> <li>• Display all the elements</li> </ul> </li> <li>3. Write a program to demonstrate the use of stack (implemented using linear array) in converting arithmetic expression from infix notation to postfix notation.</li> <li>4. Program to demonstrate the use of stack (implemented using linear linked lists) in evaluating arithmetic expression in postfix notation.</li> <li>5. Program to demonstrate the implementation of operations on a linear queue represented using a linear array.</li> <li>6. Program to demonstrate the implementation of operations on a circular queue represented using a linear array.</li> <li>7. Program to demonstrate the implementation of operations on a queue represented using a linear linked list (linked queue).</li> <li>8. Program to illustrate the implementation of different operations on a binary search tree.</li> <li>9. Program to illustrate the traversal of graph using breadth-first search.</li> <li>10. Program to illustrate the traversal of graph using depth-first search.</li> <li>11. Program to sort an array of integers in ascending order using bubble sort</li> <li>12. Program to sort an array of integers in ascending order using selection sort.</li> <li>13. Program to sort an array of integers in ascending order using insertion sort.</li> <li>14. Program to sort an array of integers in ascending order using radix sort.</li> <li>15. Program to sort an array of integers in ascending order using merge sort.</li> <li>16. Program to sort an array of integers in ascending order using quick sort.</li> <li>17. Program to sort an array of integers in ascending order using heap sort.</li> <li>18. Program to sort an array of integers in ascending order using shell sort.</li> <li>19. Program to demonstrate the use of linear search to search a given element in an array.</li> <li>20. Program to demonstrate the use of binary search to search a given element in a sorted array in ascending order</li> </ol>			



<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"><li>➤ understand the representation and use of primitive data types, built in data structure and allocation, use in memory.</li><li>➤ develop the concepts of tree, graph and their implementation using data structure &amp; algorithms.</li></ul>
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Semester - I			
<b>Course code:</b> 9MS1G1	<b>General I - Digital Electronics &amp; Computer System Architecture</b>	<b>Credits: 4</b>	<b>Hours: 4</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To educate the fundamental principles of Digital electronics such as, Number Systems, Logic Circuits, Boolean algebra and Digital circuits</li> <li>➤ To illustrate the principles of CPU organization and evolution of programming techniques of Digital Computer systems.</li> </ul>		
<b>Unit I</b>	Number Systems and Logic Circuits: Number systems - Decimal, Binary, Octal, Hexadecimal - conversion from one to another - Characters and codes - ASCII code, Excess-3 code, gray code - binary arithmetic - unsigned binary numbers - signed magnitude numbers - complements in number systems - Truth tables, AND, OR, NOT, NOR & NAND gates, EX-OR gates - parity generators and checkers.		
<b>Unit II</b>	Boolean Algebra and Digital Circuits : Boolean laws and theorems - De Morgan's theorems - Duality theorem - simplification of sum of product and product of sum expressions - Karnaugh map and simplifications - Simple arithmetic circuits - Half and Full adders - Binary adder/subtractor - BCD adder - Data processing circuits - Multiplexers - Demultiplexers - Encoders and Decoders.		
<b>Unit III</b>	Sequential Logic Design: Flip-flops - RS, JK, D & T Flip flops - Master/Slave Flip flop - Shift Registers - Counters - Asynchronous and Synchronous Counters.		
<b>Unit IV</b>	CPU organization: Processor Bus organization – ALU – Stack organization – instruction formats – Addressing modes – data transfer and manipulation – Program control.		
<b>Unit V</b>	Register Transfer Language: Inter Register Transfer – Arithmetic – Logical shift micro operations – control functions – Basic computer organization – instruction codes – instructions – Timing control – Execution of instruction – Input/output interrupt		
<b>Reference and Text Book:-</b>			
Anil K. Maini. (2007). <i>Digital Electronics: Principles, Devices and Applications</i> . John Wiley & Sons, Ltd.			
Donald P. Leach & Albert Paul Malvino. (2010). <i>Digital Principles and Application</i> . (7 <sup>th</sup> ed.). New Delhi: Tata McGraw-Hill Publishing Company Ltd.			
Morris Mano. (2001). <i>Computer System Architecture</i> (3 <sup>rd</sup> ed.) Prentice Hall of India.			
Virendra Kumar. (2006). <i>Digital Technology Principles and Practice</i> . New Delhi: New Age International,.			
William Stallings. (2001). <i>Computer Organization and Architecture</i> . (5 <sup>th</sup> ed.). Addison Wesley publications.			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ understand the operation of electronic logic elements</li> <li>➤ analyze the organization of a computer system in terms of its main components.</li> </ul>		



Semester - I			
<b>Course code:</b> 9MS1G2	<b>General II - Mathematical Logics for Software Development</b>	<b>Credits: 4</b>	<b>Hours: 4</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To impart basic features of Logic, Set Theory and ideas of Graph theory.</li> <li>➤ To give knowledge about Linear programming techniques and the principles of Resource scheduling techniques</li> <li>➤ To learn the theory of hypothesis testing and applied statistics.</li> </ul>		
<b>Unit I</b>	Logic: IF Statements – Connectives – Atomic and Compound Statements – WFF – Truth Table of a Formula – Tautology – Tautological Implications and Equivalence of Formulae. Basic concepts of Set Theory: Inclusion and Equality of sets - Power set - Operations on Sets - Venn Diagrams - Cartesian Products.		
<b>Unit II</b>	Graph Theory: Basic Concepts – Matrix representation of Graphs: Trees: Definition – Spanning Trees – Rooted Trees – Binary Trees		
<b>Unit III</b>	Linear Programming Problem: Mathematical Formulation – Graphical Solution – Slack and Artificial Variables – Simplex method – Two phase method.		
<b>Unit IV</b>	Transportation Problem – Transportation Table – Solution of Transportation Problem – Testing for Optimality – Assignment Problem – The Assignment Method – Special Cases in Assignment Problems.		
<b>Unit V</b>	Testing of hypothesis: Tests based on normal population. Applications of chi -square, Student's-t, F- distributions - Chi-square Test - goodness of fit - Test based on mean, variance, correlation and regression coefficients		
<b>Reference and Text Book:-</b>			
Dr. M.K.Venkataraman, Dr N.Sridharan & N.Chandrasekaran. (2012). <i>Discrete Mathematics</i> . The National Publishing Company.(Unit I, II)			
Hamdy A. Taha. (1987). <i>Operations Research-An Introduction</i> . (5 <sup>th</sup> ed.). Macmillan Publishing Co.			
J.P.Trembley, R.Manohar, <i>Discrete Mathematical Structures with Applications to Computer science</i> . Tata McGraw Hill.			
Kantiswarap, P.K.Gupta & Man Mohan. (2005). <i>Operation Research</i> . Sultan Chand & Sons. (Unit III, IV)			
S.C.Gupta & V.K.Kapoor. (2002). <i>Fundamentals of Mathematical Statistics</i> . (11 <sup>th</sup> ed.). New Delhi: Sultan Chand & Sons, (Unit V)			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ construct syntactic and semantic proofs in propositional and predicate logic.</li> <li>➤ develop the mathematical expressions in logic.</li> </ul>		



Skill Subject

Theory

Semester - II			
<b>Course code: 9MS2C1</b>	<b>Core – V – Principles of Computer Network Security</b>	<b>Credits: 4</b>	<b>Hours: 4</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To provide overall knowledge in computer communication networks.</li> <li>➤ To impart knowledge in network security.</li> </ul>		
<b>Unit I</b>	Introduction: Definition for the networks-Uses of Networks - Network Architecture-protocol hierarchies - Service Primitives – OSI Reference Model - ARPANET - Internet - Physical Layer Transmission Media - Telephone Systems.		
<b>Unit II</b>	Data link layer: Data link layer - Design Issues - Error Detection and Correction - Data Link Protocols - Sliding Window Protocols - Finite state Machine Model - Petri Networks-PPP-Polling - FDM.		
<b>Unit III</b>	Network Layer: Design Issues - Routing Algorithms - Congestion Control Algorithms - Inter network Routing - Fragmentation.		
<b>Unit IV</b>	Transport Layer - Design Issues - Elements of Transport Protocols - The Internet - Transport Protocol (TCP &UDP) - Application Layer: Design Issues.		
<b>Unit V</b>	Network Security: Security Requirements and Attacks – Confidentiality with Symmetric Encryption – Message Authentication and Hash Functions – Public –key Encryption and Digital Signatures – Secure Socket Layer and Transport Layer Security – Ipv4 and IPv6 Security.		
<b>Reference and Text Book:-</b>			
Andrew S Tanenbaum.(2013). <i>Computer Networks</i> . (5 <sup>th</sup> ed.). Pearson Education.			
Behrouz A Fourouzan. (2006). <i>Data Communications and Networking</i> , (4 <sup>th</sup> ed.). McGraw Hill.			
Vijay Ahuja. (1985). <i>Design and Analysis of Computer Communication Networks</i> , New York: McGraw Hill.			
William Stallings. (2004). <i>Data and Computer Communications</i> . (7 <sup>th</sup> ed.). Prentice Hall of India.			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ obtain knowledge in network security</li> <li>➤ develop and classify particular examples of attacks</li> </ul>		





Skill Subject

Theory

Semester - II			
<b>Course code: 9MS2C2</b>	<b>Core VI- Fundamentals of Operating System</b>	<b>Credits: 4</b>	<b>Hours: 4</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To impart the fundamental principles of Operating System and its services</li> <li>➤ To present detail aspects of various Process, Memory management, GUI and Security techniques of Operating System</li> </ul>		
<b>Unit I</b>	Introduction: Operating System – Batch System – Time Sharing – Personal Computer System– Parallel Systems – Real Time Systems – Distributed Systems – Computer System Operation – I/O Structure – Storage Structure – Storage Hierarchy – Hardware Protection – General System Architecture – System Components Operating System Services – System calls – system programs – system structure – virtual machines.		
<b>Unit II</b>	Process Management: Process Concept – Process scheduling – operations on processes – cooperating processes – interprocess communication – threads overview – benefits – user and kernel threads – Multithreading models – CPU scheduling concepts – scheduling criteria – Scheduling Algorithms .		
<b>Unit III</b>	Multiple processor scheduling – Real time scheduling – thread scheduling – process synchronization – critical section program – two task solutions – synchronization hardware – semaphores – classical synchronization – monitors		
<b>Unit IV</b>	Deadlocks – system model – deadlock characterization – methods for handling deadlocks – deadlock prevention – deadlock avoidance – deadlock detection – recovery from deadlock.		
<b>Unit V</b>	Storage Management: Memory Management – swapping – contiguous memory allocation – paging – segmentation with paging – Virtual Memory – Demand paging – Page replacement – Allocation of frames – Thrashing.		
<b>Reference and Text Book:-</b>			
Andrew S. Tanenbaum. <i>Operating System Design and Implementation</i> . PHI.			
A Silberschatz Peter Galvin, Greg Gagne. (2000). <i>Applied Operating System Concepts</i> . John Wiley & Sons.			
Harvey M. Deitel. <i>An introduction to Operating System</i> . Addison Wesley.			
James L. Peterson, Abraham Silberschatz. <i>Operating System Concepts Addison Wesley</i> .			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ understand the operating system and its roles.</li> <li>➤ develop the structure of operating systems, applications, and the relationship between them.</li> </ul>		



Skill Subject

Practical / Viva- Voce

Semester-II			
<b>Course code:9MS2P1</b>	<b>Core VII - .Net Technology Lab</b>	<b>Credits:4</b>	<b>Hours:5</b>
<b>Objectives</b>	➤ To implement the algorithms in ADO.net, VB.net and ASP.net.		
<p><b>VB.Net</b></p> <ol style="list-style-type: none"> <li>1. Write a Calculator program using Dynamic Controls.</li> <li>2. Write a Puzzle Game Using Dynamic Objects.</li> <li>3. Write a Program using OOPS Concept.</li> <li>4. Write a Text Editor Program.</li> <li>5. Write a Program to Draw the Picture and Save It.</li> </ol> <p><b>ASP.Net</b></p> <ol style="list-style-type: none"> <li>6. Create a Website program using Master Page.</li> <li>7. Write a Program using All Validation Controls.</li> <li>8. Write a Program using Cookies, session and Application objects.</li> <li>9. Write a program for Login Verification.</li> <li>10. Write a program using simple AJAX controls.</li> </ol> <p><b>ADO.Net</b></p> <ol style="list-style-type: none"> <li>11. Write a Salary Bill Program. Write a Students Mark List Program.</li> </ol>			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ develop, implement, and demonstrate Component Services.</li> </ul>		



<b>Semester-II</b>			
<b>Course code: 9MS2P2</b>	<b>Core VIII – Python Lab</b>	<b>Credits:3</b>	<b>Hours:4</b>
<b>Objective</b>	<ul style="list-style-type: none"> <li>➤ To implement the algorithms in Python</li> <li>➤ To get knowledge in sorting techniques using python programming</li> </ul>		
<ol style="list-style-type: none"> <li>1. Write a python program for Arithmetic Operations.</li> <li>2. Factorial calculation using python</li> <li>3. Write a python program for Fibonacci sequence up to nth term using recursive functions.</li> <li>4. A. Find the sum of natural numbers up to n using recursive function B. Find the prime numbers using python</li> <li>5. Find the maximum of a list of numbers using Linear search</li> <li>6. Write a python program for Bubble Sort</li> <li>7. Write a python program for Insertion sort</li> <li>8. Write a python program for Matrix Multiplication</li> <li>9. Compute the GCD and HCF of two numbers.</li> <li>10. Write a Python Program to find the square root of a number by Newton's Method</li> <li>11. Write a Python program to find the exponentiation of a number.</li> </ol>			
<b>Objectives</b>	This Course gave insights on: <ul style="list-style-type: none"> <li>➤ problem solving and programming capability in python</li> <li>➤ understand the underlying concepts of Python</li> </ul>		



<b>Semester-II</b>									
<b>Course code:9MS2MP</b>	<b>Core-IX-Mini-Project</b>								
<b>Credits:3</b>									
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To apply the programming knowledge into a real-world situation / problem.</li> <li>➤ To define and validate a product that is practicable in applications.</li> </ul>								
<p>The Head of the Department / Director will assign a faculty member as the Mini-project Guide to a particular student concerned in the beginning of the second semester. The student has to fix the project theme / title by submitting a proposal. The work flow of the chosen project and other related guidelines can be had from the Mini-project Guide. During this second semester, there will be two 'Reviews' conducted by the Department and the students must present themselves in person and present the mini-project progress in the form of presentation in front of the mini-project guide. At the end of the semester, the student should prepare and submit a mini-project documentation report (not less than 30 pages, A4 size). The guide will award for 75 marks based on the performance in two reviews and the quality of the mini-project documentation report. The final mini-project viva-voce for 25 marks will be conducted by the Department with two examiners (one mini-project guide and another one designated by the COE) and the cumulative marks for 100 will be given by the Department to the COE.</p> <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th style="text-align: center;">Description</th> <th style="text-align: center;">Marks</th> </tr> </thead> <tbody> <tr> <td style="text-align: center;">Internal marks</td> <td style="text-align: center;">75</td> </tr> <tr> <td style="text-align: center;">Viva-Voce</td> <td style="text-align: center;">25</td> </tr> <tr> <td style="text-align: center;"><b>Total</b></td> <td style="text-align: center;"><b>100</b></td> </tr> </tbody> </table>		Description	Marks	Internal marks	75	Viva-Voce	25	<b>Total</b>	<b>100</b>
Description	Marks								
Internal marks	75								
Viva-Voce	25								
<b>Total</b>	<b>100</b>								
<b>Outcomes</b>	<p>This Course gave insights on:</p> <ul style="list-style-type: none"> <li>➤ maintain web services required to host a website.</li> <li>➤ apply mark-up languages for processing, identifying, and presenting of information in web pages.</li> </ul>								



Skill Subject

Theory

Semester - III			
Course code: 9MS3C1	Core X – Programming in PHP	Credits: 4	Hours: 5
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To understand the concepts of PHP Programming.</li> <li>➤ To develop customized applications using PHP and MySQL</li> </ul>		
<b>Unit I</b>	<b>INTRODUCTION:</b> Brief Introduction to PHP, Apache, MySQL, and Open Source–Pieces of AMP Module – Configuring Installation – Apache, PHP, and MySQL		
<b>Unit II</b>	<b>CREATING PHP PAGES:</b> PHP Structure and Syntax–Creating First Program - Constants and Variables – Passing Variables – Using If/Else Arguments – Using Includes and Functions for Efficient Code – Arrays - Alternative Syntax for PHP		
<b>Unit III</b>	<b>USING PHP WITH MYSQL:</b> MySQL Structure and Syntax–Connecting to MySQL Server – Querying the Database. <b>USING TABLES TO DISPLAY DATA:</b> Creating a Table- Populating Table – Creating Master/Child Relationship. <b>FORM ELEMENTS:</b> First Form – Driving the User Input		
<b>Unit IV</b>	<b>MANPULATING DATA AND IMAGES IN PHP</b> –Editing Database–Working With GDLibrary - Allowing Users to Upload Images – Converting Image Files Types – Validating User Input – Handling and Avoiding Errors.		
<b>Unit V</b>	Sending Emails - User Logins, Profiles and Personalization. <b>CASE STUDY:</b> Content Management System - Online Stores		
<b>Reference And Text Book:-</b>			
Elizabeth Naramore, Jason Gerner. (2005). <i>Beginning PHP5, Apache, MySQL, with Web Development</i> . Wiley Publishing, Inc. Indianapolis, Indiana.			
James Lee. Brent Ware. (2003). <i>Open Source Web Development with LAMP using Linux, Apache, MySQL, PERL and PHP</i> . Pearson.			
Jason Gerner Elizabeth Naramore. Morgan L. Owens & Matt Warden. (2006). <i>Professional Lamp, Linux, MySQL and PHP5 and Web Development</i> . Wiley Publishing.			
<b>Outcomes</b>	This course gave insights about: <ul style="list-style-type: none"> <li>➤ principles of PHP Programming language</li> <li>➤ Testing, debugging, and deploying web pages containing PHP and MySQL.</li> </ul>		



Semester - III			
<b>Course code:</b> 9MS3C2	<b>Core – XI– Data Mining and Data Warehousing</b>	<b>Credits: 4</b>	<b>Hours: 5</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To impart knowledge related to the various concepts, methods and algorithms of data mining.</li> <li>➤ To learn Data warehousing and OLAP.</li> </ul>		
<b>Unit I</b>	<p><b>INTRODUCTION :</b> Data Mining What, Why–Data Mining Process–Applications–Techniques – Case Studies – Future of Data Mining – Guidelines for successful Data Mining – Data Mining Software.</p> <p><b>DATA WAREHOUSING:</b> Introduction – Operational Data Stores – ETL – Data Warehouses, Design, Guidelines for Data Warehouse Implementation – Data Warehouse Metadata – - Case Studies – <b>OLAP:</b> Introduction – Characteristics of OLAP Systems – Motivations for Using OLAP – Multidimensional View and Data Cube- Data Cube Operations.</p>		
<b>Unit II</b>	<p><b>ASSOCIATION RULE MINING:</b> Introduction–Basics–Task and a Naive Algorithm–The Apriori Algorithm – Improving the efficiency of the Apriori Algorithm – Apriori – TID – Direct Hashing and Pruning – Dynamic Itemset Counting – Mining Frequent Patterns without Candidate Generation – Performance Evaluation of Algorithms – Software for Association Rule Mining.</p>		
<b>Unit III</b>	<p><b>CLASSIFICATION:</b> Introduction–Decision Tree–The Tree Induction Algorithm–SplitAlgorithm on Information Theory, Gini Index – Over fitting and Pruning – Decision Tree Rules – Naive Bayes Method – Estimating Predictive and Improving Accuracy of Classification Methods – Other Evaluation Criteria for Classification Methods – Classification Software.</p>		
<b>Unit IV</b>	<p><b>WEB DATA MINING:</b> Introduction–Web Terminology and Characteristics–Locality andHierarchy in the Web – Web Content Mining – Web Usage Mining – Web Structure Mining – Web Mining Software.</p>		
<b>Unit V</b>	<p><b>INFORMATION PRIVACY AND DATA MINING:</b> Introduction–Information Privacy What – Basic Principles to Protect Information Privacy - Uses and Misuses of Data Mining - Prime Aims of Data Mining, Pitfalls – Current Principles are Ineffective.</p>		
<b>Reference And Text Book:-</b>			
G.K. Gupta. (2006). <i>Introduction to Data Mining with Case Studies</i> PHI Learning Pvt. Ltd.			
Jiawei Han, Micheline Kamber. (2006). <i>Data Mining Concepts and Techniques</i> . (2 <sup>nd</sup> ed.). New Delhi: Morgan Kaufmann Publishers.			
Margret H. Dunham. (2003). <i>Data Mining: Introductory and Advanced Topics</i> . New Delhi: Pearson Education.			
Sam Anahory, Dennis Murray. (2005). <i>Data warehousing in the real world</i> . Addison Wesley.			
Sean Kelly. (2003). <i>Data Warehousing in Action</i> . John Wiley.			
Pieter Adriaans. Dolf Zantinge. (2007). <i>Data Mining</i> . Addison Wesley.			





<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"><li>➤ organize and prepare the data needed for data mining using pre preprocessing techniques.</li><li>➤ understand the appropriate information privacy and data mining methods.</li></ul>
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Skill Subject	Theory		
<b>Semester - III</b>			
<b>Course code: 9MS3C3</b>	<b>Core – XII – Fundamentals of AI &amp; Virtual Reality</b>	<b>Credits: 4</b>	<b>Hours: 4</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To impart the fundamental aspects, principles of virtual reality technology.</li> <li>➤ To understand the machine learning and various problem solving.</li> </ul>		
<b>Unit I</b>	<b>BASICS OF ARTIFICIAL INTELLIGENCE</b> Introduction–Definition – Future of Artificial Intelligence – Characteristics of Intelligent Agents–Typical Intelligent Agents – Problem Solving Approach to Typical AI problems. Problem solving Methods – Search Strategies- Uninformed – Informed – Heuristics – Local Search Algorithms and Optimization Problems		
<b>Unit II</b>	<b>KNOWLEDGE REPRESENTATION</b> First Order Predicate Logic – Prolog Programming – Unification – Forward Chaining-Backward Chaining – Resolution – Knowledge Representation – Ontological Engineering-Categories and Objects – Events – Mental Events and Mental Objects – Reasoning Systems for Categories – Reasoning with Default Information		
<b>Unit III</b>	<b>APPLICATIONS OF AI</b> AI applications – Language Models – Information Retrieval- Information Extraction – Natural Language Processing – Machine Translation – Speech Recognition – Robot – Hardware – Perception – Planning – Moving		
<b>Unit IV</b>	<b>VIRTUAL REALITY AND VIRTUAL ENVIRONMENTS</b> Introduction – Computer Graphics – Real-time computer Graphics – Flight Simulation – Virtual Environment – Benefits of Virtual Reality – Historical Development of VR: Scientific Landmarks		
<b>Unit V</b>	<b>3D COMPUTER GRAPHICS</b> Virtual world Space – Positioning the Virtual Observer – The Perspective Projection – Human Vision – Stereo Perspective Projection – 3D Clipping – Color Theory – Simple 3D Modeling – illumination, reflection Models- Shading Algorithms – Radiosity – Hidden surface removal – realism- stereographic Images Geometric		
<b>Reference And Text Book:-</b>			
Grigore C. Burdea, Philip Coiffet. (2006). <i>Virtual Reality Technology</i> . (2nd ed.). Wiley India.			
I. Bratko. Prolog. (2011). <i>Programming for Artificial Intelligence</i> . (4 <sup>th</sup> ed.). Addison-Wesley Educational Publishers Inc.			
John Vince. (2001). <i>Virtual Reality Systems</i> . Pearson Education Asia.			
S. Russell and P. Norvig. (2009). <i>Artificial Intelligence: A Modern Approach</i> . (3 <sup>rd</sup> ed.). Prentice Hall.			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ Understand the fundamentals of animation, virtual reality and related technologies.</li> <li>➤ design the applications of virtual reality, convert the basic geometrical primitives, and transformations.</li> </ul>		



Semester - III			
Course code: 9MS3P1	Core XIII- Programming In PHP Lab	Credits: 4	Hours: 4
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To understand the basic concept of PHP Programming language, and its different modules that include Controls, String functions and arrays.</li> <li>➤ To enable the students to create a complete Website using PHP and MySQL</li> </ul>		
<ol style="list-style-type: none"> <li>1. Simple programs using PHP</li> <li>2. Simple programs using Controls and Functions</li> <li>3. Working with functions</li> <li>4. Programs for working with String Functions</li> <li>5. Illustrating the working with Arrays.</li> <li>6. HTML forms and PHP</li> <li>7. Passing Variables to PHP from HTML forms.</li> <li>8. Creating simple Database in MySQL and connectivity with PHP</li> <li>9. Display Student Information using PHP and MySQL.</li> <li>10. Develop a College Application Form using PHP and MySQL</li> <li>11. File System Functions, Network Functions, Date and Time Functions.</li> <li>12. File Upload and Converting Image File Types</li> <li>13. Maintenance of Session.</li> <li>14. Managing Cookies.</li> <li>15. Message Passing Mechanism between Pages</li> </ol>			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ design, develop and host a user friendly website.</li> <li>➤ create simple Database in MySQL and connectivity with PHP</li> </ul>		



Semester - III			
<b>Course Code:</b> 9MS3C4	<b>Core – XIV – Finishing Skills For Software Development #</b>	<b>Credits: 2</b>	<b>Hours: --</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To refresh the knowledge of students in various fields of Computer Science / Software Development</li> <li>➤ To prepare them to face their career interviews.</li> </ul>		
<b>Unit I</b>	Intelligence - Creativity & Application - Testing & Assessment - Types-Verbal Abilities & Fluency - Numerical Ability: Numbers- HCF- LCM-Decimal Fractions- Simplification- Square Roots- cube roots- averages		
<b>Unit II</b>	Problems in numbers and ages- Simple Interest- Compound Interest - True discount - Memory and Non-verbal Reasoning		
<b>Unit III</b>	Programming concepts in C, C++, JAVA		
<b>Unit IV</b>	Operations Research -Concepts of Database System – Computer Networks		
<b>Unit V</b>	Operating system Concepts - Software Engineering: Analysis, Design, Implementation and Testing		
<p>Note: This paper aims at seamless preparation of the students for attending / facing placement technical interviews. At the end of the semester, an evaluation will be done for 100 marks with 100 objective type questions. The question paper will be prepared and evaluated by the Department/ Alagappa Institute of Skill Development itself</p>			
<p><b>Reference and Textbooks:-</b></p> <p>Ajay Rai. (2001). <i>Intelligence Tests</i>. Sterling Paperbacks, Published by Sterling Publishers Pvt. Ltd. New Delhi: Green Park Extension.</p> <p>Aggarwal R. S. (2005). <i>Quantitative Aptitude for Competitive Examinations</i>. (7<sup>th</sup> ed.). New Delhi: S. Chand and Co. Ltd.</p> <p>Bjarne Stroustrup. (1999). <i>The C++ Programming Language</i>. Addison-Wesley.</p> <p>Brian W. Kernighan, Dennis M. Ritchie. (1989). <i>The C Programming Language</i>. New Delhi: Prentice Hall of India Pvt. Ltd.</p> <p>K.K. Aggarwal &amp; Yogesh Singh. (2005). <i>Software Engineering</i>. (2<sup>nd</sup> ed.). New Age International Publishers.</p> <p>Patrick Naughton &amp; Herbert Schildt. (2002). <i>JAVA 2 - The Complete Reference</i>. (5<sup>th</sup> ed.). New Delhi: Tata-McGraw-Hill.</p> <p>Rathindra P. Sen. (2010). <i>Operations Research Algorithms and Applications</i>. PHI.</p> <p>S.K. Singh. (2008). <i>Database Systems – Concepts, Design and Applications</i>. (2<sup>nd</sup> ed.). Dorling Kindersley (India) Pvt. Ltd.</p> <p>S.E Madnick &amp; J Donovan. (1987). <i>Operating Systems</i> New Delhi: McGraw Hill International Book Co.</p> <p>William Stallings. <i>Data and Computer Communications</i>. Pearson Education.</p>			
<b>Outcomes</b>	<p>After completing this course, the students are able to:</p> <ul style="list-style-type: none"> <li>➤ comprehend the concepts in C, C++, Java, Computer Networks, Operating System and Software Engineering to prepare themselves for their career interviews.</li> </ul>		



General Subject

Theory

Semester - IV			
Course code: 9MS4G1	Principles of Digital Marketing	Credits: 6	Hours: 6
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To study the scope of digital marketing mainly for lead generation and retention activities in both business to business and business to consumer environments.</li> <li>➤ To impart the Public relation and Reputation management in e-marketing.</li> </ul>		
<b>Unit I</b>	Digital evolution of marketing - The changing face of advertising- The Technology behind Digital Marketing - Strategic thinking- Digital Marketing Strategy- business and digital marketing - Understanding the digital consumer.		
<b>Unit II</b>	Digital World-website-the hub of digital marketing world- Building an effective website-Choosing domain name-Hosting website's home on the internet- How to choose a web designer/developer-Arranging information-writing effective web content -website intelligence - Way to digital marketing success - Information measured - Measuring what's important - Testing, investing , Tweaking, reinvesting - The power of online data and watch ROI take off.		
<b>Unit III</b>	E-Mail Marketing - The new direct mail- Planning campaign - Measuring success-vital component of e-mail marketing - Social media and online consumer engagement - social media - Different forms of social media - Social media dashboard - All update in one place- Rules of engagement - Adding social media to own site.		
<b>Unit IV</b>	Online PR and Reputation management - Fostering a positive online Image - Promoting business through online channels - Monitoring the conversation - Reputation management-Affiliate marketing and strategic partnerships - Recognizing opportunities for strategic partnerships - Affiliate marketing.		
<b>Unit V</b>	Marketing in prospect's pocket - Mobile market size and rate of growth-mobile marketing a game changing channel - Location, mobile gaming, mobile application - Measuring mobile, mobile privacy - Mobile data - Savvy consumer control - Collaborative consumption -co-creation- Evolving marketing power house-Tracking and measuring human behavior- Game advertising - video two screen wrappers - Holistic marketing - Blurring lines and integrating media.		
<b>Reference and Textbooks:-</b>			
Damian Ryan , Calvin Jones. (2012). <i>Understanding Digital Marketing: Marketing Strategies For Engaging The Digital Generation: Volume I</i> . New Delhi: Kogan Page London Philadelphia.			
<b>Outcomes</b>	After completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ leverage new models in business and e-commerce to increase profitability</li> <li>➤ evaluate direct marketing efforts to know the ethical and legislation impacting direct marketing.</li> </ul>		



General Subject

Theory

Semester - IV			
Course code: 9MS4G2	Fundamentals of Industry 4.0	Credits: 6	Hours: 6
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To understand the drivers and enablers of Industry 4.0</li> <li>➤ To learn the various systems used in a manufacturing plant and their roles.</li> </ul>		
<b>Unit I</b>	<b>INTRODUCTION TO INDUSTRY 4.0</b> The Various Industrial Revolutions - Digitalization and the Networked Economy - Drivers, Enablers, Compelling Forces and Challenges for Industry 4.0 - The Journey so far: Developments in USA, Europe, China and other countries - Comparison of Industry 4.0 Factory and Today's Factory - Trends of Industrial Big Data and Predictive Analytics for Smart Business Transformation		
<b>Unit II</b>	<b>ROAD TO INDUSTRY 4.0</b> Internet of Things (IoT) & Industrial Internet of Things (IIoT) & Internet of Services - Smart Manufacturing - Smart Devices and Products - Smart Logistics - Smart Cities - Predictive Analytics		
<b>Unit III</b>	<b>RELATED DISCIPLINES, SYSTEM, TECHNOLOGIES FOR ENABLING INDUSTRY 4.0</b> Cyber physical Systems - Robotic Automation and Collaborative Robots - Support System for Industry 4.0 - Mobile Computing - Related Disciplines - Cyber Security		
<b>Unit IV</b>	<b>ROLE OF DATA, INFORMATION, KNOWLEDGE AND COLLABORATION IN FUTURE ORGANIZATIONS</b> Resource-based view of a firm - Data as a new resource for organizations - Harnessing and sharing knowledge in organizations - Cloud Computing Basics - Cloud Computing and Industry 4.0		
<b>Unit V</b>	<b>BUSINESS ISSUES IN INDUSTRY 4.0</b> Opportunities and Challenges - Future of Works and Skills for Workers in the Industry 4.0 Era - Strategies for competing in an Industry 4.0 world		
<b>Reference and Textbooks:-</b>			
Alasdair Gilchrist. (February, 2017) <i>Industry 4.0: The Industrial Internet of Things</i> . Francisco Rodriguez-Diaz. Computing Reviews. ISBN-13: 978-1484220467.			
Rajkumar Buyya. (2016) <i>Internet of Things Principles and Paradigms</i> . Tood Green Publication, ISBN: 978-0-12-805395-9.			
Peter Washer. (2015). <i>Learning Internet of Things</i> . Packet Publishing.			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ understand the opportunities, challenges of Industry 4.0</li> <li>➤ provide industry standard application development knowledge and error handling routines to build Robot desktop.</li> </ul>		





Semester-IV																		
<b>Course code:9MS4MR</b>	<b>Core – XV – Industrial Internship with Project Work</b>	<b>Credits:18</b>																
<b>Objectives</b>	To produce Software Professionals: <ul style="list-style-type: none"> <li>➤ To get employment in industry, government, or take up entrepreneurial endeavors to demonstrate professional advancements through significant theoretical and practical knowledge and expanded leadership responsibilities.</li> </ul>																	
<p>The student has to attach himself / herself with an organization related to his / her specialization approved by the (Alagappa Institute of Skill Development) Department for a period of entire semester for Industrial Internship Training with Project. One personnel of that industry and a faculty of the Department will be external and internal guides of the project respectively. The project theme, work flow and other related guidelines can be had from the Industry. During this Internship period there will be two „Project Reviews“ conducted by the Department and the students must present themselves in person and present the project progress in the form of presentation in front of the internal guide. At the end of the internship, the student should prepare a project documentation report (not less than 50 pages, A4 size). Student should also produce a certificate of internship from the organization. The internal guide will award for 100 marks based on the performance in two reviews and the quality of the project documentation report. The external guide (industry personnel) of the particular student will award for 50 marks. The cumulative of these two marks for 150 will be considered as Internal mark. The final project viva-voce for 50 marks will be conducted by the Department with two examiners and the cumulative 200 marks will be given by the Department.</p> <table border="1" data-bbox="260 1218 1315 1375"> <thead> <tr> <th>Description</th> <th>Department</th> <th>Industry</th> <th>Total marks</th> </tr> </thead> <tbody> <tr> <td>Internal marks</td> <td>100</td> <td>50</td> <td>150</td> </tr> <tr> <td>Viva-Voce</td> <td>50</td> <td>--</td> <td>50</td> </tr> <tr> <td>Total</td> <td>150</td> <td>50</td> <td>200</td> </tr> </tbody> </table>			Description	Department	Industry	Total marks	Internal marks	100	50	150	Viva-Voce	50	--	50	Total	150	50	200
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Internal marks	100	50	150															
Viva-Voce	50	--	50															
Total	150	50	200															
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ Understand, analyse, design, develop, test and implement a Software on real-time applications</li> </ul>																	



General Subject

Theory

Semester - I			
<b>Course code:</b> 9MS1E1	<b>Elective – I : Fundamentals of Programming and C</b>	<b>Credits: 4</b>	<b>Hours: 4</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To impart the necessary principles of programming to develop programming skills among the learners</li> <li>➤ To learn and to understand the structure of C language to use the specialties of 'C' language to develop good programming Skills</li> </ul>		
<b>Unit I</b>	<p><b>Introduction to Algorithms and Programming Languages:</b> Fundamentals of Computers - Algorithm – Key features of Algorithms – Some more Algorithms – Flow Charts – Pseudo code – Programming Languages – Generation of Programming Languages – Structured Programming Language- Design and Implementation of Correct, Efficient and Maintainable Programs.</p> <p><b>Introduction to C:</b> Introduction – Structure of C Program – Writing the first C Program – File used in C Program – Compiling and Executing C Programs – Using Comments – Keywords – Identifiers – Basic Data Types in C – Variables – Constants – I/O Statements in C- Operators in C- Programming Examples – Type Conversion and Type Casting</p>		
<b>Unit II</b>	<p><b>Decision Control and Looping Statements:</b> Introduction to Decision Control Statements – Conditional Branching Statements – Iterative Statements – Nested Loops – Break and Continue Statement – Go to Statement</p> <p><b>Functions:</b> Introduction – using functions – Function declaration/ prototype – Function definition – function call – return statement – Passing parameters – Scope of variables – Storage Classes – Recursive functions – Type of recursion – Towers of Hanoi – Recursion vs Iteration</p>		
<b>Unit III</b>	<p><b>Arrays:</b> Introduction – Declaration of Arrays – Accessing elements of the Array – Storing Values in Array – Calculating the length of the Array – Operations that can be performed on Array – one dimensional array for inter-function communication – Two dimensional Arrays – Operations on Two Dimensional Arrays - Two Dimensional Arrays for inter-function communication – Multidimensional Arrays – Sparse Matrices</p> <p><b>Strings:</b> Introduction – Suppressive Input – String Taxonomy – String Operations – Miscellaneous String and Character functions</p>		
<b>Unit IV</b>	<p><b>Pointers:</b> Understanding Computer Memory – Introduction to Pointers – declaring Pointer Variables – Pointer Expressions and Pointer Arithmetic – Null Pointers – Generic Pointers - Passing Arguments to Functions using Pointer – Pointer and Arrays – Passing Array to Function – Difference between Array Name and Pointer – Pointers and Strings – Array of pointers – Pointer and 2D Arrays – Pointer and 3D Arrays – Function Pointers – Array Of Function Pointer – Pointers to Pointers – Memory Allocation in C Programs – Memory Usage – Dynamic Memory Allocation – Drawbacks of Pointers.</p> <p><b>Structure, Union, and Enumerated Data Types:</b> Introduction – Nested Structures – Arrays of Structures – Structures and Functions – Self referential Structures – Union – Arrays of Unions Variables – Unions inside Structures – Enumerated Data</p>		



	Types
<b>Unit V</b>	<b>Files:</b> Introduction to Files – Using Files in C – Reading Data from Files – Writing Data from Files – Detecting the End-of-file – Error Handling during File Operations – Accepting Command Line Arguments – Functions for Selecting a Record Randomly - Remove() – Renaming a File – Creating a Temporary File
<b>Reference and Text Book:-</b> Ashok N Kamthane. (2002). <i>Programming with ANSI and Turbo C</i> . Pearson Edition Publ. E Balagurusamy. (2017). <i>Computing Fundamentals &amp; C Programming</i> . 2 <sup>nd</sup> edition. Tata McGraw-Hill. Henry Mullish, Huubert L.Cooper. (1996) <i>The Sprit of C</i> Jaico Pub. House. Reema Thareja. (2012). <i>Computer Fundamentals and Programming in C</i> . Oxford University Press	
<b>Outcomes</b>	This Course gave insights on: <ul style="list-style-type: none"> <li>➤ the students are able to develop applications.</li> <li>➤ Developing good programming skills.</li> </ul>

General Subject

Theory

Semester - I			
Course code: 9MS1E2	Elective – I : Fundamentals of Data Structures and Algorithms	Credits: 4	Hours: 4
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To provide a good understanding of the fundamental data structures used in computer science</li> <li>➤ To provide a good understanding of how several fundamental algorithms work, particularly those concerned with sorting, searching and graph manipulation</li> <li>➤ To educate on the space and time efficiency of most algorithms</li> </ul>		
<b>Unit I</b>	<b>Introduction and Basic Data Structures:</b> Problem solving techniques and examples-Abstract Data Type (ADT)-The list ADT Arrays- Stacks and Queues: Implementation and Application, Circular Queues.		
<b>Unit II</b>	<b>Advanced Data Structures:</b> Trees: Preliminaries-Binary Tree- Tree traversals-Binary search Trees-AVL Trees.		
<b>Unit III</b>	<b>Sorting and Hashing:</b> Sorting by Selection- Sorting by Insertion- Sorting by Exchange-Sorting by Diminishing Increment- Heap Sort- Heaps Maintaining the Heap Property-Building a Heap- Heap sort Algorithm-Quick sort Description-Performance of quick sort-Analysis of Quick Sort. Hashing - General idea-Hash functions Separate Chaining-Open Addressing-Rehashing-Extendible Hashing.		
<b>Unit IV</b>	<b>Algorithm Design Techniques:</b> The role of algorithms in computing-Getting Started-Growth of functions. Divide and conquer dynamic programming- Greedy Algorithm – Backtracking.		
<b>Unit V</b>	<b>GRAPHS ALGORITHMS:</b> Elementary Graph Algorithms-Minimum Spanning Trees-Single - source shortest paths - All pairs shortest paths.		
<b>Reference and Text Book:-</b> D.Samantha. (2012). <i>Classic Data Structures</i> . (2 <sup>nd</sup> ed.). PHI Learning. Jean Paul Trembley, Paul G Sorenson. (2007). <i>An Introduction to Data Structures with Applications</i> . (2 <sup>nd</sup> ed.). Tata McGraw Hill. Thomas H Cormen, Charles E Leiserson & Ronald L Rivest. (2002) <i>Introduction to Algorithms</i> . (2 <sup>nd</sup> Ed.). Prentice Hall of India.			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ Implement operations like searching, insertion, and deletion, traversing mechanism etc. on various data structures.</li> <li>➤ implement Linear and Non-Linear data structures.</li> <li>➤ Implement appropriate sorting/searching technique for given problem.</li> </ul>		



General Subject

Theory

Semester - I			
<b>Course code: 9MS1E3</b>	<b>Elective – I : Object-Oriented Programming With C++</b>	<b>Credits: 4</b>	<b>Hours: 4</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To provide a sound understanding of the fundamental concepts of the object technology.</li> <li>➤ To learn the realistic applications of object oriented software systems using C++</li> </ul>		
<b>Unit I</b>	Principles of Object Oriented Programming: Software Crisis - software evolution -procedure oriented programming – object oriented programming paradigm - basic concepts and benefits of OOP - object oriented language - application of OOP - structure of C++ - applications of C++ - operators and manipulators in C++- type cast operator.		
<b>Unit II</b>	Functions in C++ : Function prototyping - call by reference – return by reference - inline functions - default, const arguments - function overloading - classes and objects: member functions - nesting of member functions – private member functions - memory allocations of objects - static data members - static member functions - arrays of objects - objects as functions arguments – friendly functions - pointers to members.		
<b>Unit III</b>	Constructors: Parameterized constructors - multiple constructors - constructor with default parameters - copy and dynamic constructors - destructors - operator overloading - overloading unary and binary operators - overloading binary operators using friend functions.		
<b>Unit IV</b>	Inheritance: Defining derived classes - single inheritance –making a private member inheritable – multilevel inheritance - multiple inheritance – hybrid inheritance – virtual method - pure virtual method - virtual base classes - abstract classes – constructors in derived classes - member classes: nesting of classes.		
<b>Unit V</b>	Streams formatted and unformatted I/O: Defined manipulators – File I/O - reading and writing - various functions - Exception handling: try - throw - catch statements – re-throwing - Templates: generic classes and functions.		
<b>Reference and Text Book:-</b>			
Bjarne Stroustrup. (1999). The C++ Programming Language. Addison Wesley.			
E. Balagurusamy. (2008). <i>Object Oriented Programming with C++</i> . (4 <sup>th</sup> ed.). New Delhi: Tata McGraw Hill.			
Herbert Schildt. (1998). C++: The complete reference. (2 <sup>nd</sup> ed.). New Delhi: Tata McGraw Hill.			
Robert Lafore. (2000). <i>Object Oriented programming in Microsoft C++</i> . New Delhi: Galgotia Publications.			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ understand the difference between the top-down and bottom-up approach</li> <li>➤ describe the object-oriented programming approach in connection with C++</li> </ul>		



Semester - II			
Course code: 9MS2E1	Elective – II : RDBMS – Lab	Credits: 5	Hours: 5
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To introduce the principles and practices of Relational Database Management Systems through SQL commands</li> <li>➤ To learn programming with PL/SQL including manipulation of Cursors, Packages and Triggers, Functions &amp; Procedure</li> </ul>		
<b>SQL</b>			
DDL: Table Creation and description of tables			
DML: Data Insertion, Deletion, Updating and Selection.			
DML: Operators (Arithmetic, Relational, Logical),			
DML: SQL Functions (Single Row Function, Group Functions).			
DML: Set operations			
DML: Join operations			
Creation of Nested queries			
Creation of Synonym, Sequence & Index			
Creation and manipulation of View.			
<b>PL/SQL</b>			
Working with control structures using PL/SQL block			
Creation and manipulation of Cursors			
Simple programs using Functions & Procedure			
Creation and manipulation of Packages			
Creation and manipulation of Triggers			
<b>Outcomes</b>	This Course gave insights on: <ul style="list-style-type: none"> <li>➤ Understand, appreciate and effectively explain the underlying concepts of database technologies</li> <li>➤ Design and implement a database schema for a given problem-domain, Normalize a database</li> <li>➤ Populate and query a database using SQL DML commands.</li> </ul>		



General Subject

Practical / Viva- Voce

Semester - II			
Course code: 9MS2E2	Elective – II : Web Graphics Lab	Credits: 5	Hours: 5
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To understand graphics programming</li> <li>➤ To be exposed to create graphical scenes using open graphics library suits</li> <li>➤ To be familiar with image manipulation, enhancement, Learn to create animations</li> <li>➤ To create a multimedia presentation/Game/Project.</li> </ul>		
<ol style="list-style-type: none"> <li>1. A program to draw a line using Digital Differential Analyzer (DDA) Algorithm</li> <li>2. A program to draw a circle using Bresenham's Circle Algorithm</li> <li>3. A program to draw a circle using MidPoint Circle Algorithm</li> <li>4. A program to draw a circle using Trigonometric Method.</li> <li>5. A program to draw a circle using Polynomial Method.</li> <li>6. A program to draw an ellipse using MidPoint Ellipse Algorithm.</li> <li>7. A program to draw an ellipse using Trigonometric Method.</li> <li>8. A program to draw an ellipse using Polynomial Method.</li> <li>9. A program to draw a C-Curve of nth order.</li> <li>10. Programs on 2D and 3D transformations</li> <li>11. Using Flash/Maya perform different operations (rotation, scaling move etc..) on objects</li> <li>12. Create a Bouncing Ball using Key frame animation and Path animation.</li> </ol>			
<b>Outcomes</b>	<p>After Completing this course, the students are able to:</p> <ul style="list-style-type: none"> <li>➤ analyze, synthesize, and utilize design processes and strategy from concept to delivery to creatively solve communication problems.</li> <li>➤ create communication solutions that address audiences and contexts, by recognizing the human factors that determine design decisions.</li> <li>➤ utilize relevant applications of tools and technology in the creation, reproduction, and distribution of visual messages.</li> </ul>		

General Subject

Practical / Viva- Voce

Semester - II			
<b>Course code: 9MS2E3</b>	<b>Elective – II : Web Designing Technologies Lab</b>	<b>Credits: 5</b>	<b>Hours: 5</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To learn the languages for the web such as, HTML, JavaScript, Photoshop, Flash and Dreamweaver</li> <li>➤ To develop interactive website creation skills and make the students to analyse the usability of a web site.</li> </ul>		
<p><b>HTML:</b></p> <ol style="list-style-type: none"> <li>1. Design and format the contents of a webpage using basic tags.</li> <li>2. Design a HTML page describing your profile using list items.</li> <li>3. Design three HTML pages to describe about courses offered in „Alagappa Institute of Skill Development“ and navigate among them.</li> <li>4. Design an application form for opening a SB account using 'form' tag.</li> <li>5. Design a webpage using Frame tag.</li> </ol> <p><b>JavaScript:</b></p> <ol style="list-style-type: none"> <li>6. Find a maximum of three given numbers using JavaScript</li> <li>7. Write a JavaScript to perform all arithmetic operations</li> <li>8. Write a JavaScript to check whether the given number is prime or not</li> <li>9. Write a JavaScript to illustrate built-in string functions.</li> <li>10. Validate user name and password using JavaScript</li> <li>11. Validate the details of SB Account form using JavaScript.</li> <li>12. Create popup boxes using java script</li> </ol> <p><b>Photoshop:</b></p> <ol style="list-style-type: none"> <li>13. Design a Student ID card using Photoshop</li> <li>14. Design an Invitation using Photoshop</li> <li>15. Using Photoshop design Flexible Banners</li> <li>16. Design a Web Page layout using slice tool using Photoshop</li> </ol> <p><b>Flash:</b></p> <ol style="list-style-type: none"> <li>17. Develop an image with the help of basic shapes in Flash</li> <li>18. Animate an image using motion, shape tweening, and actions using Flash</li> <li>19. Design an animation to bounce a ball using Flash.</li> </ol> <p><b>Dreamweaver:</b></p> <ol style="list-style-type: none"> <li>20. Develop a web page class timetable using Dreamweaver.</li> <li>21. Develop a College student application form using Dreamweaver.</li> <li>22. Design a web blog of personal details using Dreamweaver</li> </ol>			
<b>Outcomes</b>	<p>After Completing this course, the students are able to:</p> <ul style="list-style-type: none"> <li>➤ create and manipulate web media objects using editing software.</li> <li>➤ incorporate aesthetics and formal concepts of layout and organization to design websites that effectively communicate using visual elements.</li> <li>➤ conceptualize and plan an internet-based business that applies appropriate business models and web technologies.</li> </ul>		





General Subject

Practical / Viva- Voce

Semester - II			
Course code: 9MV2E4	Elective – III Corporate Etiquette Skills	Credits: 5	Hours: 5
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To enhance and sharpen the required skills and proper business etiquettes among the students to build good corporate relationship with the customers and their colleagues</li> <li>➤ To learn to build a consistent professional image with respective organization's vision and mission.</li> </ul>		
<b>Unit I</b>	Professionalism: Professional approach & behaviour – rational vs. emotional decisions – analysis of self-competence and self confidence – qualities of an effective executive		
<b>Unit II</b>	Corporate Etiquette: Dressing occasions – formal – semi formal and informal – Eating habits– Table manners – Body language: Kinesics and proximity		
<b>Unit III</b>	House Keeping Skills: Cleanliness at work place – Organizing the Work Table and Shelves – Spatial Utility and Energy Saving habits – Office Files and Personal Computer / Laptop management		
<b>Unit IV</b>	Front Office Skills: Reception and Greeting – Telephone manners – effective visitor appointments management – Preparation to attend office meetings – preparation to hold office meetings		
<b>Unit V</b>	Documentation: Objectives, Report writing, writing minutes, Preparation methods, and Report for media		
<b>Reference and Text Book:-</b>			
Lesikar, Flatley. <i>Basic Business Communication</i> . New Delhi: Tata McGraw Hill.			
Naveen Kumar, Sudan A. S. (2004). <i>Managerial Skill Development</i> . (1 <sup>st</sup> ed.). Anmol Publications.			
<a href="http://www.executiveworld.com">www.executiveworld.com</a>			
<a href="http://www.selfconfidence.co.uk">www.selfconfidence.co.uk</a>			
<a href="http://www.senselang.com">www.senselang.com</a>			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ develop professional behavior and suggest standards for appearance, actions and attitude in a business environment.</li> <li>➤ explain different communication styles and how to adjust to each</li> <li>➤ review the essentials of online and offline business networking.</li> </ul>		



Semester - II			
Course code: 9MV2E5	Elective – III Competitive Examination Skills	Credits: 5	Hours: 5
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To learn about Social skills and Conflict skills to become a successful person</li> <li>➤ To acquire interpersonal skills in order to improve the relationships with human behavior</li> </ul>		
<b>Unit I</b>	<b>Social Skills and Conflict Management Skills</b> - Component of Social Skills, effective ways of dealing with people - Types of conflict (intrapersonal, intra group and inter group conflicts) - Basic concepts, cues, signals, symbols and secrets of body language - Significance of body language in communication and assertiveness training. - Conflict stimulation and conflict resolution techniques for effective conflict management		
<b>Unit II</b>	<b>Interpersonal Skills</b> - Concept of team in work situation, promotion of team spirit, characteristics of team player - Awareness of ones own leadership style and performance - Nurturing leadership qualities - Emotional intelligence and leadership effectiveness- self awareness, self management, self motivation, empathy and social skills - Negotiation skills-preparation and planning, definition of ground rules, clarification and justification, bargaining and problem solving, closure and implementation		
<b>Unit III</b>	Intelligence, Creativity & Application, Testing & Assessment		
<b>Unit IV</b>	Types, Verbal Abilities & Fluency, Numerical Ability		
<b>Unit V</b>	Spatial and Perceptual Abilities, Situation reaction Test, Memory and Inductive Reasoning		
<b>Reference and Text Book:-</b>			
Abdulhashen. (2012). <i>Interview Manual</i> . New Delhi: Ramesh publishing House.			
Anandamurugan.S. <i>Placement Interviews</i> . Tata McGraw Hill.			
Ajay Rai. (2001). <i>Intelligence Tests</i> . Sterling Paperbacks. New Delhi: Sterling Publishers			
Competition Success Review magazines			
Hurlock E.B. (2006). <i>Personality Development</i> . 28 <sup>th</sup> Reprint. New Delhi: Tata McGraw Hill.			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ conquer the issues related to social and inter-personal skills</li> <li>➤ get knowledge about verbal and non-verbal reasoning abilities to confidently face the interview process</li> </ul>		



Semester - II			
<b>Course code: 9MV2E6</b>	<b>Elective – III Soft Skills and Entrepreneurial Skills</b>	<b>Credits: 5</b>	<b>Hours: 5</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To familiarize the students with the latest programs of the government authorities in promoting small and medium industries.</li> <li>➤ To impart knowledge regarding how to start new ventures.</li> </ul>		
<b>Unit I</b>	<b>Self Concept, Self Esteem and Leadership:</b> Self Concept- Definition and Characteristics of Self Concept – Definition of Self-Esteem - Factors influence Self Esteem - Low Vs High Self Esteem - Step to raise Self Esteem - Leadership and Goal setting: Emergence and Functions of Leader - Characteristics of Leadership - Types of Leadership - Characteristics of Successful Leadership.		
<b>Unit II</b>	<b>Listening:</b> Active listening –Barriers to listening –Listening and note taking. <b>Speaking:</b> Word stress and rhythm –Pauses and sense groups – Falling and rising tones – Fluency and pace of delivery – Art of small talk – Participating in conversations – Making a short formal speech. <b>Reading:</b> Reading with a purpose – Making predictions – Understanding text structure – Locating main points – Making inferences.		
<b>Unit III</b>	<b>Writing Models:</b> Letters - Resume and Covering letters - e-mail - Filling application forms. <b>Presentation Skills:</b> Soft skills for academic presentations - Structuring the presentation - Choosing appropriate medium – Clarity and brevity.		
<b>Unit IV</b>	Concepts of entrepreneur: Entrepreneur- Definitions-Characteristics of entrepreneur-Classification of entrepreneur-Entrepreneurial traits-Entrepreneurial functions - role of entrepreneurs in the economic development- Factor effecting entrepreneurial growth-Entrepreneurship - Meaning- definition- Entrepreneur Vs Intrapreneur- Women Entrepreneurs-Recent development-Problems-Entrepreneurial Development Programmes-Objectives of EDP-Methods of training- Phases of EDP		
<b>Unit V</b>	Institutional support and incentives to entrepreneurs- Functions of Department of Industries and Commerce (DIC) - Activities of Small Industrial Development Corporation (SIDCO)-Functions of National Small Industries Corporation(NSIC)-Functions of Small Industries Development Bank of India (SIDBI)- Small Industries Service Institute (SISI)- Activities of Science and Technology Entrepreneurship Development Project (STEDP)-Strategies of National entrepreneurship Development Board(NEDB)-Objectives of National Institute for entrepreneurship and small business development (NIESBUD)-Functions of Software Technology Parks of India (STPI) - Techno park-Functions of techno park Incentives-Importance- Classification of incentives-Subsidy- Types of Subsidy - Basics of Startups – principles – Government schemes: Startup India – principles – plans – policies – procedures – Non-Government schemes – other related schemes.		



**Reference and Text Book:-**

Marilyn Anderson, Pramod K Nayar & Madhucchandra Sen. *Critical Thinking, Academic Writing and Presentation Skills*, Pearson Education & Mahatma Gandhi University.

Sasikumar .V, Kiranmai Dutt .P & Geetha Rajeevan. *Communication Skills in English*, Cambridge University Press & Mahatma Gandhi University.

SangramKeshariMohanty. *Fundamentals of Entrepreneurship*. New Delhi: PHI. MSME Act 2006.

Shukla M.B. *Entrepreneurship and small Business Management*, KitabMahal Allahabad.

Xavier Alphones S.J. (March 2004). *We Shall Overcome A Textbook on Life Coping Skills*. Chennai: ICRDCE Publication.

<http://startupindia.gov.in/>

**Outcomes**

After Completing this course, the students are able to:

- recognize the importance of interpersonal skills
- describe how good communication with other can influence our working relationships
- outline and play the roles of work groups and teams.

General Subject

Theory

Semester - III			
Course code: 9MS3E1	Elective – IV Principles of IOT	Credits: 5	Hours: 5
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To understand the Architecture of IoT and its underlying technologies</li> <li>➤ To impart Knowledge about the use of devices in IoT Technology</li> </ul>		
<b>Unit I</b>	IoT- Introduction: The Vision-Introduction, From M2M to IoT, M2M towards IoT-the global context, A use case example, Differing Characteristics.		
<b>Unit II</b>	IoT-A Market Perspective: Introduction, Some Definitions, M2M Value Chains, IoT Value Chains, An emerging industrial structure for IoT, The international driven global value chain and global information monopolies. M2M to IoT-An Architectural Overview– Building an architecture, Main design principles and needed capabilities, An IoT architecture outline, standards considerations.		
<b>Unit III</b>	IoT Technology Fundamentals: Devices and gateways, Local and wide area networking, Data management, Business processes in IoT, Everything as a Service(XaaS), M2M and IoT Analytics, Knowledge Management.		
<b>Unit IV</b>	IoT Architecture-State of the Art: Introduction, State of the art, Architecture Reference Model- Introduction, Reference Model and architecture, IoT reference Model		
<b>Unit V</b>	IoT Reference Architecture: Introduction, Functional View, Information View, Deployment and Operational View, Other Relevant architectural views. Real-World Design Constraints- Introduction, Technical Design constraints-hardware is popular again, Data representation and visualization, Interaction and remote control. Industrial Automation- Service-oriented architecture-based device integration.		
<b>Reference and Text Book:-</b>			
Francis daCosta, (2013). <i>Rethinking the Internet of Things: A Scalable Approach to Connecting Everything</i> . (1 <sup>st</sup> ed.). Apress Publications.			
Jan Holler, VlasiosTsiatsis, Catherine Mulligan, Stefan Avesand, Stamatis Karnouskos & David Boyle. (2014). <i>From Machine-to-Machine to the Internet of Things: Introduction to a New Age of Intelligence</i> . (1 <sup>st</sup> ed.). Academic Press.			
Vijay Madiseti and ArshdeepBahga. (2014). <i>Internet of Things (A Hands-on-Approach)</i> . (1 <sup>st</sup> ed.). VPT.			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ design real world IoT applications</li> <li>➤ develop and commercialize automation products using IoT</li> </ul>		



General Subject

Theory

Semester - III			
<b>Course code:</b> 9MS3E2	<b>Elective – IV Principles of Compiler Design</b>	<b>Credits: 5</b>	<b>Hours: 5</b>
<b>Objectives</b>	➤ To introduce the principles of Compiler and its various phases such as, Lexical analysis, Syntax analysis, Intermediate code generation, Optimization and Code generation		
<b>Unit I</b>	Introduction to Compilers: Compilers and Translators – Lexical analysis – Syntax analysis – Intermediate code generation – Optimization – code generation – Bookkeeping – Error handling – compiler writing tools. Finite Automata and Lexical Analysis: The role of the lexical analyzer – the design of the lexical Analyzers – Regular expressions – Finite automata – From regular expressions to finite automata – Minimizing the number of states of a DFA – A language for specifying lexical analyzers – Implementation of a lexical analyzer.		
<b>Unit II</b>	The syntactic specification of Programming Languages: Context – free grammars – Derivations and parse trees – Capabilities of context – free grammars. Basic Parsing Techniques: Parses – Shift – reduce parsing – Operator – precedence parsing – Top-down parsing – Predictive parsers. Automatic construction of efficient parsers: LR parsers – Constructing SLR parsing tables – Constructing LALR parsing tables.		
<b>Unit III</b>	Syntax – Directed translation: Syntax Directed translation schemes – Implementation of syntax – directed translators – Intermediate code – Postfix notation – Parse trees and syntax trees – Three – address code, quadruples, and triples – Translation of assignment statements – Boolean expressions – Statements that alter the flow of control – Postfix translations – Translation with a top-down parser.		
<b>Unit IV</b>	Symbol Tables: The contents of a symbol table – Data structures for symbol tables – Representing scope information. Run time storage administration: Implementation of a simple stack allocation scheme – Implementation of block – structured languages – Storage allocation in block – structured languages. Error Detection and Recovery: Errors – lexical – phase errors – Syntactic phase errors – Semantic errors.		
<b>Unit V</b>	Introduction to code optimization:- The principal sources of optimization – loop optimization– The DAG Representation of basic blocks. Code generation: object programs – Problems in code generation – A machine model – A simple code generator – Register allocation and assignment – Code generation from DAG"s – Peephole optimization.		
<b>Reference and Text Book:-</b> Alfred V. Aho, Monica S. Lam, Jeffrey D. Ullman & Ravi Sethi. (2011). <i>Compilers : Principles, Techniques and Tools</i> . Pearson/Addison Wesley. Dhamdhere D. M. (1981). <i>Compiler Construction Principles and Practice</i> . Macmillan India. Reinhard Wilhelm, Director Mauser. (1995). <i>Compiler Design</i> . Addison Wesley.			
<b>Outcomes</b>	After Completing this course, the students are able to: ➤ analyse basics of compiler design and apply for real time applications. ➤ understand different translation languages		



Semester - III			
Course code: 9MS3E3	Elective – IV Cloud Computing	Credits: 5	Hours: 5
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To impart the basic concepts of cloud computing and its applications.</li> <li>➤ to introduce the monitoring and management activities.</li> </ul>		
<b>Unit I</b>	<b>INTRODUCTION TO CLOUD COMPUTING:</b> Roots of Cloud Computing – Layers and Types of Cloud – Features of a Cloud – Infrastructure Management – Cloud Services – Challenges and Risks – Migrating into a Cloud: Introduction – Broad Approaches – Seven Step Model – Integration as a Service – Integration Methodologies – SaaS		
<b>Unit II</b>	<b>INFRASTRUCTURE AS A SERVICE:</b> Virtual Machines – Layered Architecture – Life Cycle – VM Provisioning Process – Provisioning and Migration Services – Management of Virtual Machines Infrastructure – Scheduling Techniques – Cluster as a Service – RVWS Design – Logical Design – Cloud Storage – Data Security in Cloud Storage – Technologies		
<b>Unit III</b>	<b>PLATFORM AND SOFTWARE AS A SERVICE:</b> Integration of Public and Private Cloud – Techniques and Tools – Framework Architecture – Resource Provisioning Services – Hybrid Cloud – Cloud Based Solutions for Business Applications – Dynamic ICT Services – Importance of Quality and Security in Clouds – Dynamic Data Center – Case Studies – Workflow Engine in the Cloud – Architecture – Utilization – Scientific Applications for Cloud – Issues – Classification – SAGA – Map Reduce Implementation		
<b>Unit IV</b>	<b>MONITORING AND MANAGEMENT:</b> An Architecture for Federated Cloud Computing – Use Case – Principles – Model – Security Considerations – SLA Management – Traditional Approaches to SLO – Types of SLA – Life Cycle of SLA – Automated Policy – Performance Prediction of HPC – Grid and Cloud – HPC Performance Related Issues		
<b>Unit V</b>	<b>APPLICATIONS:</b> Best Practices in Architecting Cloud Applications in the AWS Cloud – Massively Multilayer Online Game Hosting on Cloud Resources – Building Content Delivery Networks using Clouds – Resource cloud Mashups.		
<b>Reference and Text Book:-</b>			
George Reese. (2009). <i>Cloud Application Architectures</i> . Shroff O'reilly. ISBN: 8184047142.			
Michael Miller. (2009). <i>Cloud Computing Web Based Applications that change the way you work and collaborate online</i> . Pearson Education.			
Rajkumar Buyya, James Broberg & Andrzej Goscinski. (2011). <i>Cloud Computing Principles and Paradigms</i> . Wiley Publications.			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ define Cloud Computing and memorize the different Cloud service and deployment models</li> <li>➤ understand the virtualization along with their technologies.</li> </ul>		



Semester - III			
<b>Course code: 9MS3E4</b>	<b>Elective – V: Distributed Programming With J2ee Lab</b>	<b>Credits: 5</b>	<b>Hours: 5</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To understand the importance of Classes &amp; objects along with constructors, Arrays and Vectors.</li> <li>➤ To impart the principles of inheritance, interface and packages and demonstrate through problem analysis assignments .</li> </ul>		
<p>1. Remote Method Invocation</p> <p><b>Servlet</b></p> <p>2. Cookies</p> <p>3. JDBC</p> <p><b>JSP</b></p> <p>4. Get and Post method</p> <p>5. Cookies</p> <p>6. Servlets - Returning Information received from the client.</p> <p>7. Servlets and JDBC – Constructing a response by accessing a database.</p> <p>8. JSP – use of script let.</p> <p>9. JSP - use of java beans.</p> <p>10. JDBC</p> <p><b>EJB</b></p> <p>11. Session Bean</p> <p>12. Entity Bean</p>			
<b>Outcomes</b>	<p>After Completing this course, the students are able to:</p> <ul style="list-style-type: none"> <li>➤ implement OOPs concepts using basic syntaxes of control Structures, strings and function for developing skills of logic building activity.</li> <li>➤ achieve reusability using inheritance, interfaces and packages and describes faster application development can be achieved.</li> </ul>		





Semester - III			
Course code: 9MS3E5	Elective – V: Software Design Lab	Credits: 5	Hours: 5
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To impart comprehensive knowledge on various UML diagrams and to introduce Software testing techniques and tools.</li> <li>➤ To enable the students to use the Software Testing tools in an effective manner so as to debug a code themselves</li> </ul>		
<ol style="list-style-type: none"> <li>1. Parts of UML diagrams</li> <li>2. Create following UML diagrams for Bank ATM Transaction System <ul style="list-style-type: none"> <li>• Class Diagrams</li> <li>• Use case Diagrams</li> <li>• Sequence Diagrams</li> <li>• Component Diagrams</li> <li>• Collaboration Diagrams</li> </ul> </li> <li>3. Create following Static UML diagrams for Library Management System <ul style="list-style-type: none"> <li>• Class Diagrams</li> <li>• Component Diagrams</li> <li>• Deployment Diagram</li> </ul> </li> <li>4. Create following Dynamic UML diagrams for Student Mark Analysing System <ul style="list-style-type: none"> <li>• Use case Diagrams</li> <li>• Sequence Diagrams</li> <li>• Collaboration Diagram</li> <li>• State chart Diagram</li> <li>• Activity Diagram</li> </ul> </li> </ol>			
<b>Outcomes</b>	After Completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ design and implement diagrams for OOP systems using UML</li> </ul>		



Semester - III			
<b>Course code: 9MS3E6</b>	<b>Elective – V: XML &amp; Andriod Programming Lab</b>	<b>Credits: 5</b>	<b>Hours: 5</b>
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To learn the designing of User Interface and Layouts for Android Applications.</li> <li>➤ To learn how to use intents to broadcast data among Applications.</li> </ul>		
<p><b>XML</b></p> <ol style="list-style-type: none"> <li>1. XML document creation</li> <li>2. Style sheets: CSS</li> <li>3. Style sheets: XSL</li> <li>4. XSL templates</li> <li>5. Validation using DTD</li> <li>6. SAX and DOM</li> </ol> <p><b>ANDROID</b></p> <ol style="list-style-type: none"> <li>7. Different Layout design including nested layout for a single biodata.</li> <li>8. Arithmetic Operation for two numbers</li> <li>9. Business Calculator</li> <li>10. Animation: Bouncing of a ball</li> <li>11. Intent</li> <li>12. Database SQLite: Student Biodata</li> <li>13. Fragments – Tablet Programming</li> <li>14. Media Player</li> </ol>			
<b>Outcomes</b>	<p>After Completing this course, the students are able to:</p> <ul style="list-style-type: none"> <li>➤ experiment in Integrated Development Environment for Android Application.</li> <li>➤ design and Implement User Interfaces and Layouts of Android Applications.</li> <li>➤ use Intents for activity and broadcasting</li> </ul>		



Semester - II			
Course code: 9MS2N1	Non-Major Elective – II Web Designing	Credits: 2	Hours: 3
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To impart the fundamentals of Inter-networking and its protocols</li> <li>➤ To understand the various steps in designing a creative and dynamic website using HTML, JavaScript and Bootstrap.</li> </ul>		
<b>Unit I</b>	<p><b>Introduction and Overview:</b> Growth of Computer Networking – Why Networking Seems Complex – The Five Key Aspects of Networking – Public And Private Parts of The Internet – Networks, Interoperability, And Standards – Protocol Suites And Layering Models – How Data Passes Through Layers – Headers And Layers – ISO and the OSI Seven Layer Reference Model – The Inside Scoop – Remainder of The Text</p> <p><b>Internet Trends:</b> Introduction – Resource Sharing – Growth of The Internet – From Resource Sharing to Communication – From Text to Multimedia – Recent Trends</p>		
<b>Unit II</b>	<p><b>Traditional Internet Applications:</b> Introduction – Application-Layer Protocols – Representation and Transfer – Web Protocols – Document Representation with HTML – Uniform Resource Locators and Hyperlinks – Web Document Transfer with HTTP – Caching In Browsers – Browser Architecture – File Transfer Protocol (FTP) – FTP Communication Paradigm – Electronic Mail – The Simple Mail Transfer Protocol (SMTP) – ISPs, Mail Servers, And Mail Access – Mail Access Protocols (POP, IMAP) – Email Representation Standards (RFC2822, MIME) – Domain Name System (DNS) – Domain Names That Begin with www – The DNS Hierarchy And Server Model – Name Resolution</p>		
<b>Unit III</b>	<p><b>Introduction to HTML/XHTML:</b> Basic Syntax – Standard HTML Document Structure – Basic Text Markup – Images – Hypertext Links – Lists – Tables – Forms – The audio Element – The video Element – Organization Elements – The time Element</p>		
<b>Unit IV</b>	<p><b>The Basics of JavaScript:</b> Overview of JavaScript – Object Orientation and JavaScript – General Syntactic Characteristics – Primitives, Operations, and Expressions – Screen Output and Keyboard Input – Control Statements – Object Creation and Modification – Arrays – Functions – Constructors</p> <p><b>JavaScript and HTML Documents:</b> Events and Event Handling – Handling Events from Body Elements – Handling Events from Button Elements – Handling Events from Text Box and Password Elements</p>		
<b>Unit V</b>	<p><b>Getting Started with Bootstrap:</b> Mobile-first design – Why Bootstrap</p> <p><b>Installing and Customizing Bootstrap:</b> Including Bootstrap in your HTML file – The Bootstrap CDN – Overriding with custom CSS – Using the Bootstrap customizer – Deep customization of Bootstrap</p> <p><b>Using the Bootstrap Grid:</b> Using the Bootstrap Grid classes – Using the Bootstrap variables and mixins – Creating a blog layout with the Bootstrap Grid mixins and variables</p>		



	<b>Using the Base CSS:</b> Implementing the Bootstrap Base CSS – Customizing the Base CSS using LESS variables
<b>Reference and Textbooks:-</b> Aravind Shenoy, Ulrich Sossou. (2014). <i>Learning Bootstrap - Unearth the potential of Bootstrap to create responsive web pages using modern techniques</i> . Packt Publishing Ltd. Douglas E. Comer. <i>Computer Networks and Internets</i> . (5 <sup>th</sup> ed.). Pearson Education. Robert W. Sebesta. <i>Programming the World Wide Web</i> . (8 <sup>th</sup> ed.). Pearson Education.	
<b>Outcomes</b>	After completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ employ basic programming techniques for WWW</li> <li>➤ understand the fundamental skills to maintain the services of web server required to host a website.</li> <li>➤ Create, manipulate and publish web media.</li> </ul>

General Subject

Theory

Semester - III			
Course code: 9MS3N2	Non- Major Elective II-Principles of Digital Marketing	Credits: 2	Hours: 3
<b>Objectives</b>	<ul style="list-style-type: none"> <li>➤ To study the scope of digital marketing mainly for lead generation and retention activities in both business to business and business to consumer environments.</li> <li>➤ To impart the Public relation and Reputation management in e-marketing.</li> </ul>		
<b>Unit I</b>	Digital evolution of marketing - The changing face of advertising- The Technology behind Digital Marketing - Strategic thinking- Digital Marketing Strategy- business and digital marketing - Understanding the digital consumer.		
<b>Unit II</b>	Digital World-website-the hub of digital marketing world- Building an effective website-Choosing domain name-Hosting website's home on the internet- How to choose a web designer/developer-Arranging information-writing effective web content -website intelligence - Way to digital marketing success - Information measured - Measuring what's important - Testing, investing , Tweaking, reinvesting - The power of online data and watch ROI take off.		
<b>Unit III</b>	E-Mail Marketing - The new direct mail- Planning campaign - Measuring success-vital component of e-mail marketing - Social media and online consumer engagement - social media - Different forms of social media - Social media dashboard - All update in one place- Rules of engagement - Adding social media to own site.		
<b>Unit IV</b>	Online PR and Reputation management - Fostering a positive online Image - Promoting business through online channels - Monitoring the conversation - Reputation management-Affiliate marketing and strategic partnerships - Recognizing opportunities for strategic partnerships - Affiliate marketing.		
<b>Unit V</b>	Marketing in prospect's pocket - Mobile market size and rate of growth-mobile marketing a game changing channel - Location, mobile gaming, mobile application - Measuring mobile, mobile privacy - Mobile data - Savvy consumer control - Collaborative consumption -co-creation- Evolving marketing power house-Tracking and measuring human behavior- Game advertising - video two screen wrappers - Holistic marketing - Blurring lines and integrating media.		
<b>Reference and Textbooks:-</b>			
Damian Ryan , Calvin Jones. (2012). <i>Understanding Digital Marketing: Marketing Strategies For Engaging The Digital Generation: Volume 1</i> . New Delhi: Kogan Page London Philadelphia,			
<b>Outcomes</b>	After completing this course, the students are able to: <ul style="list-style-type: none"> <li>➤ leverage new models in business and e-commerce to increase profitability</li> <li>➤ evaluate direct marketing efforts to know the ethical and legislation impacting direct marketing.</li> </ul>		



**BROAD BASED BOARD OF STUDIES**

Broad Based Board of Studies for Alagappa Institute of Skill Development held on 7<sup>th</sup> June, 2019 in the Alagappa Institute of Skill Development, Alagappa Univeristy, Karaikudi with the following subject Experts.

**Members Present:**

- |    |  |  |
|----|--|--|
| 1  | <b>Dr.B. Dharmalingam</b><br>Professor & Director<br>Alagappa Institute of Skill Development<br>Alagappa University, Karaikudi                     | Chairperson / Convener   |
| 2  | <b>Dr.G.Mahesh</b><br>Assistant Professor(Fashion Technology)<br>Alagappa Institute of Skill Development<br>Alagappa University, Karaikudi         | Member   |
| 3  | <b>Dr.C.Balakrishnan</b><br>Assistant Professor(Software Development)<br>Alagappa Institute of Skill Development<br>Alagappa University, Karaikudi | Member   |
| 4  | <b>Dr.J.Hayavadana</b><br>Professor & Head, Department of Textile Technology<br>Osmania University<br>Amberpet, Hyderabad, Telangana-500007        | Subject Expert<br>(Fashion Technology)                         |
| 5  | <b>Dr.S.Nickolas</b><br>Professor in Computer Application<br>National Institute of Technology, Tiruchirappalli                                     | Subject Expert<br>(Software Development)                       |
| 6  | <b>Dr.Anand Bhojan</b><br>Senior Faculty<br>Department of Computer Science<br>National University of Singapore, Singapore                          | Foreign Subject Expert   |
| 7  | <b>Dr.K.J.Sivagnanam</b><br>Head-Skill Development Initiatives<br>NIFT TEA, Mudalipalayam,Tirupur-641 606  | Co-opted Member from the<br>Industry<br>(Fashion Technology)   |
| 8  | <b>Mr. A. Arockia Arulnathan</b><br>Senior Automation Developer<br>K7 Computing Pvt.Ltd, Chennai   | Co-opted Member from the<br>Industry<br>(Software Development) |
| 9  | <b>Dr. KM. Pachiyappan</b><br>Head, Department of Costume Design & Fashion<br>PSG College of Arts & Science, Coimbatore-14                         | Special Invitee<br>(Fashion Technology)                        |
| 10 | <b>Dr. A. Senthilrajan</b><br>Professor & Director<br>Department of Computational Logistics<br>Alagappa University, Karaikudi.                     | Special Invitee<br>(Software Development)                      |



- |    |  |                                   |
|----|--|-----------------------------------|
| 11 | <b>Dr. S. Rajaram,</b><br>Professor Dept. of Tamil<br>Head <i>i/c</i> , Dept. of Fine Arts<br>Alagappa University, Karaikudi                 | Special Invitee<br>(Tamil)        |
| 12 | <b>Dr. P. Madhan</b><br>Associate Professor and Head <i>i/c</i><br>Dept of English and Foreign Languages,<br>Alagappa University, Karaikudi. | Special Invitee<br>(English )     |
| 13 | <b>Ms. J. Jenita Mary</b><br>No.3/436, Vairavapuram 3 <sup>rd</sup> Street,<br>Karaikudi.  | Student Alumni<br>Special Invitee |
| 14 | <b>Dr. E. Kannapiran</b><br>Director, Curriculum Design and Development Cell<br>Alagappa University, Karaikudi                               | Ex-Officio Member                 |



**CURRICULUM VITAE**

Name: **Dr. B. Dharmalingam**  
 Designation: Professor & Director  
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 Email: dharmaws@yahoo.co.in

**Educational qualification:**

- M.A.,
- M.Phil.,
- Ph.D

**Professional experience:**

- 25 Years

**Honours and Awards:**

- Created four Vocational / Skill training units under Alagappa Institute of Skill Development, namely,
  - a. UG-B.Voc. programmes
  - b. Garment Training Unit
  - c. Alagappa University-IL&FS Institute of Skills (AU-IIS)
  - d. Small Industries Services Unit (SISU) to offer Vocational / Skill training programmes.
- Participated UK Seminar and Study tour on 'Improving Employer and Learner Engagement in Vocational Education' during 15th – 17th November 2016 at Birmingham, United Kingdom in response to the invitation of British Council - India, New Delhi
- Got approval and financial assistance of Rs. 1.85 Cr from UGC, New Delhi to start UG-B.Voc. Degree programmes in 1). Fashion Technology and 2). Software Development from the academic year 2014-'15.
- Signed eight MoUs. (Six with Industry partners, one MoU with IL&FS Institute of Skills, New Delhi to establish AU-IIS and another with Entrepreneurship Development Institute, Chennai to offer various Skill training programmes).
- Applied for DDU-KAUSHAL Kendra scheme to UGC, New Delhi for the tune of Rs. 5 Cr to offer PG and Research programmes beyond B.Voc. Degrees.
- Got approval by SSC-NASSCOM as Training partner to offer 'Web Developer' and 'Software Developer' certificate programmes.
- Produced 100% result in the skill assessment carried out by SSCs 1). Apparel Made ups & Home furnishing Sector Skill Council and 2). NASSCOM to the B.Voc. students.
- In B.Voc. programmes, 16,30,32 and 24,43,50 students were admitted during the academic years 2014-'15, 2015-'16 and 2016-'17 into the respective B.Voc. programmes in Fashion Technology and Software Development. Among them, 7 – B.Voc. Fashion Technology and 5 – B.Voc. Software Development second year students have got placement in the first year of their studies itself.
- Through, Garment Training Unit under AISD, during the period of April-2013 to January-2017 totally 300 trainees were trained in the short-term certificate courses in 'Industrial Sewing Machine Operation' and 'Embroidery' with University certificate and very minimal course fee. Rs. 2 lakhs of fund is generated from the course fee of the trainees.
- Prior to this 30 trainees were trained in Fashion Designing with the financial assistance of Rs. 1 lakh by the Entrepreneurship Development Institute (EDI), Tamil Nadu and 218 trainees were given training in Repairing of Refrigeration & AC machines, Welding Technology and other Entrepreneurship Development programmes through the 'Entrepreneurship cum Skill Development Centre'.
- Established Alagappa University-IL&FS Institute of Skills (AU-IIS), Karaikudi in October 2013 under the aegis of Alagappa University, by signing MoU with IL&FS Institute of Skills, New Delhi as India's first skills institute offering university recognized and NOS compliant placement linked short term High-end employable Technical training programmes and handhold support to start Income Generating Activities on various trades. The courses offered at AU-IIS are mapped to the NOS designed by the industry-led SSCs. During the period of The AISD/AU-IIS is offering various Certificate / Diploma programmes in Welding / CNC Machine Operator / Electrician / Patient Care Assistant / Mechatronics (both Diploma & PG Diploma) / Solar P.V. Technician / Assistant Mason / Application Development in Android / Front-End





Design and Development / Banking Executive for the duration of two / three months. Within a short span of three years (2013 – 2016), AISD/AU-IIS acclaimed 81% of placement record among the 1101 candidates trained. The AU-IIS is augmented with CNC turning machine, CNC Milling machine, Welding simulator, TIG/MIG Welding machines, AG-4, AG-7 grinding machines, Electrical Working board and healthcare equipments for providing training in the above said programmes.

- In particular, we have a specialized Mechatronics Training Centre with latest equipments such as, PLC kit, Scada PLC kit, HMI & Sensor training kit, Pneumatic with PLC and Hydraulic with PLC. We have trained 24 final year students of Alagappa Chettiar College of Engineering Technology, Karaikudi in Mechatronics. We also give training to the newly recruited faculty of ACCET in Welding, CNC and Mechatronics. As a result of our quality of training and latest amenities, the Alagappa Chettiar College of Engineering Technology, Karaikudi expresses its interest to sign MoU for extending the training to all its Students and Faculty.
- Mobilized the machineries worth of 2.25 Cr to the AISD for offering various skill / vocational training.

Recent publications:

National

- Dharmalingam. B; Empowering Rural Women And Youth Through Skill Development: The experiments of Alagappa University, in Best Practices in Rural Development, Shanlax Publications, Madurai, (ISBN 978-9385977-85-5, Nov, 2016 P.No: 267-286.
- Dharmalingam. B; Skill Development Curriculum - Possible role of Universities: A case study of Practices in Alagappa University, in Health Indicators for Physical and Cognitive Fitness Education, Universal Publishers, Chennai, (ISBN: 978-81-836868-84) 2016 P.No: 12-20.
- Dharmalingam. B; Critical Analysis of Health and Cognitive issues of Information Technology Professionals, in Health Indicators for Physical and Cognitive Fitness Education, Universal Publishers, Chennai, (ISBN: 978-81-836868-8-4) 2016 P.No: 2126.
- Dharmalingam. B; Inculcation of Soft skills during Academic persuasion towards Professional Sustainability of Information Technocrats, in Health Indicators for Physical and Cognitive Fitness Education, Universal Publishers, Chennai, (ISBN: 97881-836868-8-4) 2016 P.No: 243-247.
- Dharmalingam. B; பழ்தமிழ் டெதாழிசா வாவய, in Health Indicators for Physical and Cognitive Fitness Education, Universal Publishers, Chennai, (ISBN: 978-81836868-8-4) 2016 P.No: 652-655
- Dharmalingam. B; Empowering Women through Skill Development: Challenges and Opportunities, Women and Social Transformation, Department of Women's Studies, Alagappa University, (ISBN 978-81-928690-4-9), 2016, p-42-52.
- Dharmalingam. B; Nutritional Status Assessment of Ramanathapuram Adolescent College Girls, Feminism Today, (ISBN 978-81-928113-8-3), 2014, p-427-430
- Dharmalingam. B; Feminist Research Methodology, Enhancing the Quality of Social Science Research, Department of Women's Studies, Alagappa University (ISBN 978-81928690-3-2), 2014, P.No: 53-82
- Dharmalingam. B; The Idea and Practice of Mainstreaming Gender in Development and Governance, Gender Mainstreaming and Sustainable Development, Department of Women's Studies, Alagappa University, (ISBN 978-81-927063-2-0), 2013

International

- Dharmalingam. B; Continuum of Nehruvian Discourse in contemporary rural development in India, International Research Journal of Business and Management – IRJBM, Vol. IX, Issue-7 (ISSN 2322-083X), July- 2016
- Dharmalingam. B; Pandit Jawaharlal Nehru: The Founding Father of Panchayati Raj Institutions in India, International Journal of Management and Social Science Research Review, Vol.1, Issue.5. (ISSN 2349-6738), May - 2016, p-127-132.
- Dharmalingam. B; A Study on Sustainable Development of Small & Medium Enterprises in Ashar Nagar, 60 Feet Road, Tirupur, Management Research (Athenaeum 09), BIM, Thiruchirappalli, 2009.
- Dharmalingam. B; Human Rights Education: Lessons for Life, Third Concept – An International Journal of Ideas - Vol.14, No.168, Feb, 2001, p.23-24

Cumulative Impact factor:

Total Citation: 34

h- index: 02

i10- index: 01



*CURRICULUM VITAE*

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## Educational qualification:

- M.Sc.,
- Ph.D

## Professional experience:

- 9 Years

## Honours and Awards:

- UGC NET qualified in 2008 and 2010
- Academic Proficiency Award

## Recent publications:

**National conference**

- **G. Mahesh**, “Computational Textiles Bioengineering”, Two-Day National Conference on Recent Trends in Informatics (NCRTI 2018), Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 19<sup>th</sup> - 20<sup>th</sup> March 2018
- J. Jenita Mary and **G. Mahesh**, “Smart Textiles for wearable Technology”, Two-Day National Conference on Recent Trends in Informatics (NCRTI 2018), Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 19<sup>th</sup> - 20<sup>th</sup> March 2018
- S.Karpagam and **G. Mahesh**, “Smart Textiles for wearable Technology”, Two-Day National Conference on Recent Trends in Informatics (NCRTI 2018), Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 19<sup>th</sup> - 20<sup>th</sup> March 2018.
- B.Subbulakshmi and **G. Mahesh**, “Study the Anti diabetic effect of Millet foods in diabetic induced rats , Two-Day National Conference on Recent Trends in Informatics (NCRTI 2018), Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 19<sup>th</sup> - 20<sup>th</sup> March 2018.
- **G. Mahesh** and B.Dharmalingam, “Nanotechnology Applications in Textiles. One day national conference on Recent Developments in Textile and Fashion, PSG College of Arts and Science, Coimbatore., 19<sup>th</sup> March. 2018.
- **G. Mahesh** and B.Dharmalingam, “Eco Friendly Approaches in Textile water treatment. One day national conference on Emerging Trends in the Apparel Sector, Bishop Appasamy College of Arts and science, Coimbatore., 7 th February 2018.
- **G. Mahesh** and A. Sharada Devi “Effect on Enzyme treatment on bamboo fabric dyed with natural dyes”, Two day national conference on Emerging strategies in Green Textiles and Sustainable Fashion, Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 10<sup>th</sup> - 11<sup>th</sup> January 2017
- **G. Mahesh** and D.Anitha “Bioremediation of textile waste water treatment. Two day national conference on Emerging strategies in Green Textiles and Sustainable Fashion, Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 10<sup>th</sup> - 11<sup>th</sup> January 2017
- **G. Mahesh** “ Research on replacing synthetic fibre with coir fibre for mulches in agricultural fields, Two day national conference on Emerging strategies in Green Textiles and Sustainable Fashion, Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 10<sup>th</sup> - 11<sup>th</sup> January 2017



**International conference**

- **G. Mahesh** “Musculoskeletal disorders for apparel Industry workers. International Conference on Health Indicators for Physical and Cognitive Fitness Education Faculty of Education, Alagappa University, Karaikudi, 26<sup>th</sup> - 27<sup>th</sup> February 2016.
- **G.Mahesh** and Sirisha Deepthi Sornapudi, “Techniques And Application of Smart Textiles, IT Skills Show & International Conference on Advancements in Computing Resources (SSICACR 2017), Alagappa Institute of Skill Development & Computer Centre, Alagappa University, Karaikudi, 15<sup>th</sup> - 16<sup>th</sup> February 2017.
- Sirisha Deepthi Sornapudi and **G.Mahesh**, “Fashion on Smart Phone –APPS that Connect with Customer. Techniques And Application of Smart Textiles, IT Skills Show & International Conference on Advancements in Computing Resources (SSICACR 2017), Alagappa Institute of Skill Development & Computer Centre, Alagappa University, Karaikudi, 15<sup>th</sup> - 16<sup>th</sup> February 2017.

**National Publications**

- Ashwini Joshi, D.Anitha and G.Mahesh and Physical properties of organic and non organic cotton: comparative study, Manmade Textiles in India, Vol. XLVI No. 7 July 2018.
- G.Mahesh and Anitha Eco friendly fabrics from bamboo. The Indian textile Journal.Vol124 No.7 April 2014
- Anitha and G.Mahesh Utility of herbal products in Antimicrobial finishing of cotton Fabrics. The Journal of Research of ANGRAU. Vol.XLI No.3 July-September 2013.
- Handle properties of enzyme treated bamboo and bamboo blended fabrics. The Journal of Research of ANGRAU. Vol.XL No.2 April-June 2012.
- Natural dye on bamboo and bamboo blended fabrics. International workshop on Natural Dyes 2014, March NAIP-VCND, ICAR, ANGRAU, Hyderabad.

**International**

- G.Mahesh and Sirisha Deepthi Sornapudi, Techniques and application of Smart Textiles, International Journal of Computer Science Volume 5, Issue 2, No 05, 2017
- Sirisha Deepthi Sornapudi and G.Mahesh Fashion on Smartphone - Apps that Connect with Consumer, International Journal of Computer Science Volume 5, Issue 2, No 04, 2017
- G.Mahesh, Anitha and Sharada Devi, Study of bamboo charcoal polyester nonwoven fabric for effluent filtration. International Journal of Advanced Research in Management and social sciences. Vol.3.No.7 July 2014.

Cumulative Impact factor:

Total Citation: 01

h- index: 01

i10- index: 0



**CURRICULUM VITAE**

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**Educational qualification:**

- M.Sc.,
- M.Phil.,
- Ph.D

**Professional experience:**

- 14 Years

**Honours and Awards:**

- UGC NET qualified in 2012
- SET qualified in 2012
- Appreciation letter from the Vice-Chancellor, Alagappa University for contributions for preparation towards NAAC Accreditation, NIRF Ranking and IoE proposal in 2018
- College Appreciation Award in 2010

**Recent publications:****National Conference**

- P. Subhasri and **C. Balakrishnan**, “Survey on Data Mining Techniques for Plant Leaf Classification”, Two-Day National Conference on Recent Trends in Informatics (NCRTI 2018), Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 19<sup>th</sup> - 20<sup>th</sup> March 2018
- S. Santhosh Kumar and **C. Balakrishnan**, “Issues and Challenges for Digital Forensic Investigation”, Two-Day National Conference on Recent Trends in Informatics (NCRTI 2018), Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 19<sup>th</sup> - 20<sup>th</sup> March 2018
- **C. Balakrishnan**, S. Santhosh Kumar and A. Sumathi “An Analysis of Mitigation Policies of Information Security”, Two-Day National Conference on Recent Trends in Informatics (NCRTI 2018), Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 19<sup>th</sup> - 20<sup>th</sup> March 2018
- **C. Balakrishnan**, and B. Dharmalingam “A Study on Internet Penetration in Rural India”, Two-Day National Conference on Recent Trends in Informatics (NCRTI 2018), Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 19<sup>th</sup> - 20<sup>th</sup> March 2018
- K. Nithya Kalyani and **C. Balakrishnan**, “Emerging Trends in Educational Informatics”, Two-Day National Conference on Recent Trends in Informatics (NCRTI 2018), Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 19<sup>th</sup> - 20<sup>th</sup> March 2018
- K. Seethalakshmi and **C. Balakrishnan**, “Content Based Image Retrieval using R+ Tree Algorithm”, Two-Day National Conference on Recent Trends in Informatics (NCRTI 2018), Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 19<sup>th</sup> - 20<sup>th</sup> March 2018
- **C. Balakrishnan**, B. Dharmalingam, “A Study on Gender Discrimination and Information Technology Skills Acquisition”, UGC Sponsored Two-Day National Conference on Contemporary Issues in Justice and Human Rights (CIJHR 07), Department of History & Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 25<sup>th</sup> - 26<sup>th</sup> September 2017
- **C. Balakrishnan**, S. Ganesan, “An Investigation on Inclusiveness of Mobile Apps for Justice and Rights”, UGC Sponsored Two-Day National Conference on Contemporary Issues in Justice and Human Rights (CIJHR 07), Department of History & Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 25<sup>th</sup> - 26<sup>th</sup> September 2017
- **C. Balakrishnan**, Albert Levay, “An Empirical Analysis of Awareness on Rights by the IT Technocrats”, UGC Sponsored Two-Day National Conference on Contemporary Issues in Justice and Human Rights (CIJHR 07), Department of History & Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 25<sup>th</sup> - 26<sup>th</sup> September 2017
- **C. Balakrishnan**, S. Santhoshkumar, “A Study on the Role of Digital Age and ICT in Protecting and Promoting Uniform Justice and Rights”, UGC Sponsored Two-Day National Conference on Contemporary



Issues in Justice and Human Rights (CIJHR 07), Department of History & Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 25<sup>th</sup> - 26<sup>th</sup> September 2017

- S. Santhoshkumar, **C. Balakrishnan**, "Study on detection of Hacking in Wireless using Access Point", National Conference on Emerging trends in Computing (NCETC 2017), Department of Computer Science, Alagappa University, Karaikudi, 13<sup>th</sup> - 14<sup>th</sup> March, 2017
- **C. Balakrishnan**, "An Analysis on Nano-Fabrics as Emerging Smart Textile", National Conference on Emerging Strategies in Green Textiles and Sustainable Fashion (NCESGTSF - 2017), Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 10<sup>th</sup> - 11<sup>th</sup> January 2017
- **C. Balakrishnan**, "CAD/CAM - Past, Present and Future in Textile Curriculum and Industry", National Conference on Emerging Strategies in Green Textiles and Sustainable Fashion (NCESGTSF - 2017), Alagappa Institute of Skill Development, Alagappa University, Karaikudi, 10<sup>th</sup> - 11<sup>th</sup> January 2017
- **C. Balakrishnan**, "A Recital on Biological Computers", National seminar on Advances in Computer Science (NSACS 2016), Department of Computer Science, Alagappa University, Karaikudi, 21<sup>st</sup> - 22<sup>nd</sup> October, 2016
- **C. Balakrishnan**, "A Critic review on Biodiversity Informatics", National seminar on Advances in Computer Science (NSACS 2016), Department of Computer Science, Alagappa University, Karaikudi, 21<sup>st</sup> - 22<sup>nd</sup> October, 2016
- **C. Balakrishnan**, "Swami Vivekananda: A True Igniter of Young Minds", National Conference on Swami Vivekanandar: A Youth Icon (SVYI-2016), Swami Vivekananda Centre for Higher Research and Education, Alagappa University, Karaikudi, 24<sup>th</sup> October, 2016
- D.I. George Amalarethnam and **C. Balakrishnan**, "ElasticPeerDB- An Optimized Approach for Efficient Fragmentation and Re-Allocation in Peer-to-Peer Distributed Databases", National Conference on Emerging Trends in Software Development, Alagappa University, March 2016.
- M. Priya and **C. Balakrishnan**, "A Critical Study on Agile Software Development Methodologies", National Conference on Emerging Trends in Software Development, Alagappa University, March 2016.
- M. Rekha and **C. Balakrishnan**, "An Analytical Study of Multimedia User Interfaces in Education", National Conference on Emerging Trends in Software Development, Alagappa University, March 2016.
- M. Priya and **C. Balakrishnan**, "Analysis of Green Computing Impacts on Environment", National Conference on Emerging Trends in Software Development, Alagappa University, March 2016.
- Karamchand Gandhi and **C. Balakrishnan**, "The Internet of Things (IOT)- Architecture, Applications, Security and Privacy", National Conference on Recent Advancements in Software Development, Alagappa University, March 2015.

#### International Journals

- S. Santhoshkumar, **C. Balakrishnan**, R.Muthulakshmi, "A Study of Stress Caused by Social Interactions in Social Networks", International Journal of Computer Engineering and Applications (ISSN 2321-3469), Vol. 12, Issue 5, pp. 142-147, May 2018.
- **C. Balakrishnan**, "An enhanced methodology for efficient Fragmentation and Re-Allocation in P2PDDBS", International Journal of Advanced Research Trends in Engineering and Technology (IJARTET) (ISSN 2394-3777), Vol. 3, Special Issue 20, pp. 590-595, April 2016.
- D.I. George Amalarethnam and **C. Balakrishnan**, "HAADAS- An enhanced approach for Re-allocation of Fragments in Peer-to- Peer Distributed Databases", International Journal of Applied Engineering Research (ISSN 0973-4562) - Scopus Indexed, Annexure II Journal, Vol. 10 No.82, pp. 315-320, 2015.
- D.I. George Amalarethnam and **C. Balakrishnan**, "An improved mechanism of clustering the sites for Peer-to-Peer Distributed Databases", International Journal of Fuzzy Mathematical Archive (ISSN- 2320-3242), Vol. 5, No. 2, pp. 57-69, December 2014.
- D.I. George Amalarethnam and **C. Balakrishnan**, "*oDASuANCO* - Ant Colony Optimization based Data Allocation Strategy in Peer-to-Peer Distributed Databases", International Journal on Science, Engineering and Technology, International Journal of Enhanced Research Publications (ISSN NO- 2319-7463), Vol. 2, No. 3, pp. 1-8, March 2013.
- D.I. George Amalarethnam and **C. Balakrishnan**, "A Study on Performance Evaluation of Peer-to-Peer Distributed Databases", IOSR Journal of Engineering (ISSN- 2250-3021), Vol. 2(5) pp- 1168-1176, May 2012.
- D.I. George Amalarethnam and **C. Balakrishnan**, "A Survey on Peer-To-Peer Real Time Object Databases", Published in International Journal on Research and Reviews in Computer Science (IJRRCS) (ISSN-2079-2557), Vol. 1, No. 4, pp. 8-10, December 2010.





### International Conferences

- K. Nithya Kalyani, **C. Balakrishnan**, "Photo Sharing Safe Mode Services to Make Privacy Reliability", IT Skills Show & International Conference on Advancements in Computing Resources (SSICACR 2017), Alagappa Institute of Skill Development & Computer Centre, Alagappa University, Karaikudi, 15<sup>th</sup> - 16<sup>th</sup> February, 2017.
- M. Rekha, **C. Balakrishnan**, "Study on New Architecture for Enhancing the Security and Performance of E-Mail Security Protocols", IT Skills Show & International Conference on Advancements in Computing Resources (SSICACR 2017), Alagappa Institute of Skill Development & Computer Centre, Alagappa University, Karaikudi, 15<sup>th</sup> - 16<sup>th</sup> February 2017.
- M. Priya, **C. Balakrishnan**, "Big data- Issues, Challenges and Tools", IT Skills Show & International Conference on Advancements in Computing Resources (SSICACR 2017), Alagappa Institute of Skill Development & Computer Centre, Alagappa University, Karaikudi, 15<sup>th</sup> - 16<sup>th</sup> February 2017.
- M. Priya, **C. Balakrishnan**, "A Brief Introduction to Process and Analyze Healthcare Big Data on Cloud Environment", IT Skills Show & International Conference on Advancements in Computing Resources (SSICACR 2017), Alagappa Institute of Skill Development & Computer Centre, Alagappa University, Karaikudi, 15<sup>th</sup> - 16<sup>th</sup> February 2017.
- B. Dharmalingam, **C. Balakrishnan**, M. Priya, "Role of ICT in Vocational Education and Training", IT Skills Show & International Conference on Advancements in Computing Resources (SSICACR 2017), Alagappa Institute of Skill Development & Computer Centre, Alagappa University, Karaikudi, 15<sup>th</sup> - 16<sup>th</sup> February 2017.
- B. Dharmalingam, **C. Balakrishnan**, M. Priya, "Blended Learning- A Pathway to Enhance Learning Experiences in Vocational Education", IT Skills Show & International Conference on Advancements in Computing Resources (SSICACR 2017), Alagappa Institute of Skill Development & Computer Centre, Alagappa University, Karaikudi, 15<sup>th</sup> - 16<sup>th</sup> February 2017.
- **C. Balakrishnan**, "A Recital on Extreme Programming and SDLC", IT Skills Show & International Conference on Advancements in Computing Resources (SSICACR 2017), Alagappa Institute of Skill Development & Computer Centre, Alagappa University, Karaikudi, 15<sup>th</sup> - 16<sup>th</sup> February 2017.
- **C. Balakrishnan**, "An Empirical Study on Agile based Development and Testing Methodologies", IT Skills Show & International Conference on Advancements in Computing Resources (SSICACR 2017), Alagappa Institute of Skill Development & Computer Centre, Alagappa University, Karaikudi, 15<sup>th</sup> - 16<sup>th</sup> February 2017.
- B. Dharmalingam and **C. Balakrishnan**, "Skill Development Curriculum - Possible role of Universities- A case study of Practices in Alagappa University", International Conference on 'Health Indicators for Physical and Cognitive Fitness Education' Alagappa University, Karaikudi, 26<sup>th</sup> & 27<sup>th</sup> February, 2016.
- B. Dharmalingam, **C. Balakrishnan** and M. Priya, "Critical Analysis of Health and Cognitive issues of Information Technology Professionals in India", International Conference on 'Health Indicators for Physical and Cognitive Fitness Education' Alagappa University, Karaikudi, 26<sup>th</sup> & 27<sup>th</sup> February, 2016.
- B. Dharmalingam, M. Priya and **C. Balakrishnan**, "Inculcation of Soft skills during Academic persuasion towards Professional Sustainability of Information Technocrats", International Conference on 'Health Indicators for Physical and Cognitive Fitness Education' Alagappa University, Karaikudi, 26<sup>th</sup> & 27<sup>th</sup> February, 2016.
- D.I. George Amalarethinam and **C. Balakrishnan**, "HAADAS - An enhanced approach for Re-allocation of Fragments in Peer-to- Peer Distributed Databases", International Conference on Advanced Computing (ICAC 2015), Jamal Mohamed College, Tiruchirappalli, December 3-4, 2015.
- B. Dharmalingam and **C. Balakrishnan**, "Empowering Women through Skill Development- Challenges and Opportunities", International Conference on 'Women and Social Transformation- New Era of Just and Gender- Fair Society (ICWS - 2015)' Alagappa University, Karaikudi, 21<sup>st</sup> & 22<sup>nd</sup> August 2015.
- D.I. George Amalarethinam and **C. Balakrishnan**, "An Optimized Strategy for Data Allocation in Peer-to-Peer Distributed Databases", International Conference on Mathematical methods and Computation (ICOMAC 2015), Jamal Mohamed College, Tiruchirappalli, 22-23, January 2015.

Cumulative Impact factor:

Total Citation: 14

h- index: 03

i10- index: 0



**CURRICULUM VITAE**

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**Educational qualification:**

- B.Tech.,
- M.Tech.,
- Ph.D

**Professional experience:**

- 30 Years

**Honours and Awards:-----****Recent publications:****National**

- Design and Development of Drape Tester , Journal of Apparel Technology and Management , June 2018

**International**

- Arjun. D L, RenukaTejaswini, J Hayavadana and Susheel “ Efficet of Potassium PermanganateFinish on the Properties of Denim Fabric” European Journal of Advances in Engineering andTechnology, 3(9), December 2016, 28-32
- Arjun. D L. RenukaTejaswini, Vinay Kumar Midha and J Hayavadana“ Potential of NonwovenFabrics as Surgical Gowns” International Research Journal of Medical Sciences, 5(1), February2017,1-4.
- Novel Approach To Apparel Drape measurement- A New Horizon, Prof. Dr.J. Hayavadana, Ayodya Kavitha,Kodamagundla Sreenu, International Journal of Advance Research in Science and Engineering, Vo.No:6, Issue No:3, March 2017
- ‘When textiles meet computers’, Ayodya Kavitha, Prof. J.Hayavadana and Bathini Deepthi, May 2017, Link: <http://www.fibre2fashion.com/industry-article/7930/when-computers-meet-textiles>
- ‘Novel methods of Assessment Asthetic properties of Dress material’International Journal of Current Advanced Research, July 2017
- Arjun. D L. RenukaTejaswini, Vinay Kumar Midha and J Hayavadana“ Potential of NonwovenFabrics as Surgical Gowns” International Research Journal of Medical Sciences, 5(1), February2017,1-4.
- Novel Approach To Apparel Drape measurement- A New Horizon, Prof. Dr.J. Hayavadana, Ayodya Kavitha, Kodamagundla Sreenu, International Journal of Advance Research in Science and Engineering, Vo.No:6, Issue No:3, March 2017
- ‘When textiles meet computers’, Ayodya Kavitha, Prof. J.Hayavadana and Bathini Deepthi, May 2017, Link: <http://www.fibre2fashion.com/industry-article/7930/when-computers-meet-textiles>
- ‘Novel methods of Assessment Asthetic properties of Dress material’ International Journal of Current Advanced Research, July 2017
- “NEW METHODS OF ASSESSING AND GRADING APPAREL FABRICS”, S.Viswanaath., J. Hayavadana., Ayodya Kavitha ., J.Lakshminarayana and Pradeepkumar, International Journal of Current Advanced Research., Sept 2018
- Application of a Multivariate Analysis (Biplot) Method to a Comparative Study of Fabric Characteristics-J. Hayavadana+, Srinivasulu .K\*,International Journal of Latest Technology in Engineering, Management & Applied Science (IJLTEMAS),Volume VII, Issue XII, December 2018 , ISSN 2278-2540
- Study of degradation of polyester partially oriented yarns through alkaline hydrolysis process Hayavadana J,1 Srinivasulu K, Volume 5 Issue 1 – 2019,MEDCRAVE, Journal of Textile Engineering & Fashion Technology

**Cumulative Impact factor:**

Total Citation: 199

h- index: 02

i10- index: 01



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Educational qualification:

- M.C.A.,
- M.E.,
- Ph.D

Professional experience:

- 30 Years

Honours and Awards:---

Recent publications:

**National Conference**

- P.Asokan, S.Nickolas, "CAD/CAM solutions for CNC machining/turning center", Eighth ISME conference on mechanical engineering New Delhi, 1993.
- P.Ramaraj, S.Nickolas, "A descriptive study on data mining and Algorithm for multi-dimensional association", All India seminar on IT for 21<sup>st</sup> century, IE(India), 1997.
- N.Gayatri, S.Nickolas, A.V.Reddy, "Comparative Study of Software Quality Metrics Feature Set Using Data mining Techniques", National Conference on Advanced Pattern Mining and Multimedia Computing(APMMC 10) , NIT, Tiruchirappalli, February 2010.

**International Conference**

- K. Shobha, S. Nickolas, "Imputation of multivariate attribute values in big data", International Conference on Smart Intelligent Computing and Applications, Springer, Singapore, 2019, pp. 53-60.
- K. Shobha, S. Nickolas, "Integration and Rule-based Pre-Processing of Scientific Publication Records from Multiple Data Sources", International Conference on Smart Intelligent Computing and Applications(SCI 2018), Springer, Bhubaneswar.
- Silambarasan E, Nickolas S, Mary Saira Bhanu S, "Attribute based Convergent Encryption Key Management for Secure Deduplication in Cloud", 3rd International Conference on Advanced Computing and Intelligent Engineering (ICACIE 2018), Springer, Bhubaneswar.
- Sareena Rose, Nickolas, S., Sangeetha, S., "Machine Learning and Statistical Approaches used in Estimating parameters that affect the soil fertility status : A Survey", Second International Conference on Green Computing and Internet of Things (ICGCIoT 2018), IEEE, Bangalore.
- Pitchai, A. V. Reddy, N. Savarimuthu, "Quantum walk based genetic algorithm for 01 quadratic knapsack problem", 2015 International Conference on Computing and Network Communications (CoCoNet) (2015) 283-287.
- T. Subramanian, N. Savarimuthu, "Effective tariff selection on cloud services: A consumer perspective", 2014 International Conference on Contemporary Computing and Informatics (IC3I) (2014) 326-330

**International Journals**

- M.Chandrasekaran,P.Asokan,S.Kumanan,T.Balamurugan,S.Nickolas,"Solving job shop scheduling problems using Artificial Immune System", International Journal of Advanced Manufacturing Technology, UK,(2006) 31:580-593
- S.Nickolas , C.S.P.Rao , A.V.Reddy and P Asokan," Performance Enhancement of Flow Shop Scheduling using Data Mining", Journal of Advanced Manufacturing Technology, CMTI, Vol.6,No.8, pp.17-23,August 2007
- Ilango Paramasivam, Hemalatha Thiagarajan, Nickolas Savarimuthu , "Imputation of Missing Data Using Weight Based Clustering in type II diabetes Databases", Journal of Advanced Research in Computer Engineering, Vol 3, No. 1,pp99-104 January-June 2009.ISSN:0974-4320
- Sarojini BalaKrishnan, Ramaraj NarayanaSwamy, Nickolas Savarimuthu, "Feature Selection Using F-Score on Classification of TYPE II Diabetes Databases", Journal of Advanced Research in Computer Engineering, Vol 3, No. 1,pp.1-6,January-June 2009.ISSN:0974-4320





- Ilango Paramasivam, Hemalatha Thiagarajan, Nickolas Savarimuthu, "A Semi Supervised Clustering by  $\lambda$ \_cut for Imputation of missing Data in TYPE II Diabetes Databases", Indian Journal of Medical Informatics, Vol 4, No. 1, 2009
- Ilango Paramasivam, Hemalatha Thiagarajan, Poonkuntran Shanmugam, Nickolas Savarimuthu, "Imputation of Missing Data :A Semi Supervised Clustering Methodology", Journal of information Science and Technology, 6(3) pp 38-55, Washington, DC, USA 2009.
- Sarojini BalaKrishnan, Ramaraj NarayanaSwamy, Nickolas Savarimuthu, " Feature Subset Selection using Nomogram in TYPE II Diabetes Databases", Indian Journal Of Medical Informatics, 4(1):5, 2009.
- N.Gayatri, S.Nickolas, A.V.Reddy, "Performance Analysis and Enhancement of Software Quality Metrics using Decision Tree based Feature Extraction", International journal of Recent Trends in Engineering, Vol 2, No. 4, pp.54-56, November 2009.
- R.Chithra, S.Nickolas, "A Novel Algorithm for Mining Hybrid-Dimensional Association Rules", International journal of Computer Applications(0975-8887), Vol1-No.16, pp.62-69, 2010.
- R.Chithra, S.Nickolas, "Partition Based High Utility Itemset Mining", Intl. J. of Decision Making in Supply Chain and Logistics, Vol.1, No.2, pp.153-165, July-Dec. 2010.
- R.Eswari, S.Nickolas, "A Level-wise Priority Based Task Scheduling for Heterogeneous Systems", Intl. J. of Information and Education Technology, Vol.1, No.5, pp.371-376, Dec.2011.
- R.Chithra, S.Nickolas, " HUPT-Mine : An efficient algorithm for high utility pattern mining", Intl. J. of Business and Systems Research, Vol.6, No.3, pp.279-275, 2012.
- R.Eswari, S.Nickolas, "Efficient Task Scheduling for Heterogeneous Distributed Systems using Firefly Algorithm", Intl. J. of Computer Science and Engineering (Accepted).
- S.Karthikeyan, P.Asokan, S.Nickolas, T.Page, "Solving Flexible Job Shop Scheduling Problems with a hybrid PSO Algorithm and Data Mining-An Attribute oriented approach", Intl. J.of Manufacturing Technology and Management.(Accepted).
- R.Chithra, S.Nickolas, "VB-HU-Mine : An Efficient High Utility Itemset Mining Algorithm using Vertical Data Representation", Intl. J. of Information Technology and Management.
- Anandkumar P,S.Nickolas, "Significance of One-Class Classification in Outlier Detection", IJCIIS, June 2013, Vol 4, No. 6.
- S.Karthikeyan, P.Asokan, S.Nickolas, "A hybrid discrete firefly algorithm for multi-objective flexible job shop scheduling problem with limited resource constraints", Int J Adv Manuf Technol, 2014.
- N.Gayatri, S.Nickolas, A.V.Reddy, "A Frame Work for Business Defect Predictions in Mobiles", IJCA, Vol 81, No.1, November 2013.
- R.Eswari, S.Nickolas, Michael Arock "A path priority-based task scheduling algorithm for herterogenous distributed systems", Int.J.Communication Networks and Distributed Systems, Vol 12, No.2, 2014
- R.Eswari and S.Nickolas "Effective task scheduling for herterogenous distributed systems using firefly algorithm", Int.J.Computational Science and Engineering, Vol 11, No. 2, 2015
- T. Subramanian, N. Savarimuthu, "Application based brokering algorithm for optimal resource provisioning in multiple heterogeneous clouds", Vietnam Journal of Computer Science 3 (2015) 57-70.
- A. Prakasam, N. Savarimuthu, "Metaheuristic algorithms and probabilistic behaviour: a comprehensive analysis of ant colony optimization and its variants", Artificial Intelligence Review 45 (2015) 97-130.
- T. Subramanian, N. Savarimuthu, "Cloud service evaluation and selection using fuzzy hybrid MCDM approach in marketplace", IJFSA 5 (2016) 118-153.
- A. Pitchai, A. V. Reddy, N. Savarimuthu, "Fuzzy based quantum genetic algorithm for project team formation", IJIT 12 (2016) 31-46.
- A. Prakasam, N. Savarimuthu, "Novel local restart strategies with hyper populated ant colonies for dynamic optimization problems", Neural Computing and Applications (2018) 1-14.
- K. Shobha, S. Nickolas, "Analysis of importance of pre-processing in prediction of hypertension", CSI Transactions on ICT 6 (2) (2018) 209-214.

Cumulative Impact factor:

Total Citation: 347

h- index: 09

i10- index: 07



**CURRICULUM VITAE**

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## Educational qualification:

- M.C.A.,
- **PGC in Teaching Higher Education**
- Ph.D

## Professional experience:

- 

## Honours and Awards:

- 2012 Nominated for Best PhD Thesis Award (Wang Gungwu Medal & Prize), National University of Singapore.
- 2011 Dean's Graduate Research Achievement Award (PhD), SoC, National University of Singapore.
- 2006 Best R&D Project award, TOTE Board, Singapore model R&D project, 'Mobile Industrial Network Integrating 3G for Mobile Experiments'
- 2003 Best Presenter Award, Industrial-Info Comm. Technology (M2M), Singapore Industrial Automation Association, Mobile/Wireless Enabling Technologies for M2M
- 2000 Best Presentation Award, Association Of Principals Of Colleges Of Bharathiar University., 'Need Based Curriculum Development'
- 1995 Gold medal for first Rank (out of 4000) in Computing, Bharathiar University, Awarded by the honourable Governor of the State
- 1989 State Government's Higher Education Scholarship for Outstanding Academic Performance, State 39th Rank among 300,000 candidates.

## Recent publications:

**International**

- Bhojan Anand and Pan Wenren, "CloudHide: Towards Latency Hiding Techniques for Thin-client Cloud Gaming," ACM Multimedia 2017. ACM, New York, NY, USA, 144-152.
- Anand Bhojan, Hong Wei Wong, "TITAl - Asynchronous multiplayer shooter with procedurally generated maps," In Entertainment Computing, Volume 16, 2016, Pages 81-93, ISSN 1875-9521.
- Bhojan Anand, Li Kecen, Akkihebbal L. Anand , "PARVAI - HVS Aware Adaptive Display Power Management for Mobile Games," IPS/IEEE Proceedings of the 7th International Conference on Mobile Computing and Ubiquitous Networking - ICMU 2014.
- Bhojan Anand, "Energy Efficient Multi-player Smartphone Gaming using 3D Spatial Subdivisioning and PVS Techniques," Proceedings of the 21th ACM International Conference on Multimedia - IMMPD 2013, Barcelona, Spain.
- Bhojan Anand , Lee Kee Chong, Ee-Chien Chang, Mun Choon Chan, Akkihebbal L. Ananda and Wei Tsang Ooi, "El-pincel: a painter cloud service for greener Web Pages," Proceedings of the 20th ACM international conference on Multimedia Nov 2012, Nara, Japan.
- K Thirugnanam, Bhojan Anand, J Sebastian, PG Kannan, AL Ananda, RK Balan, and MC Chan, "Dynamic Lookahead Mechanism for Conserving Power in Multi-Player Mobile Games," IEEE INFOCOM 2012, Orlando, Florida, Mar 2012.



- Bhojan Anand, Akhihebbal L. Ananda, Mun Choon Chan and Rajesh Krishna Balan, " ARIVU: Making Networked Mobile Games Green - A Scalable Power-Aware Middleware ", MOBILE NETWORKS AND APPLICATIONS, Springer Netherlands, Feb 2012.
- Bhojan Anand, Karthik Thirugnanam, Jeena Sebastian, Pravein G. Kannan, Akhihebbal L. Ananda, Mun Choon Chan, and Rajesh Krishna Balan. 2011. "Adaptive display power management for mobile games," In Proceedings of ACM MobiSys '11. ACM, New York, NY, USA, 57-70.

Cumulative Impact factor:

Total Citation: 234

h- index: 7

i10- index: 6



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**Educational qualification:**

- Diploma in Textile Designing & Weaving
- B.Tech.,
- M.Tech.,
- Ph.D.

**Professional experience:**

- 22 Years

**Honours and Awards:**

- As Project Head, Implemented Placement Linked Skill Development Training Programs for about 25000 + candidates with the support of various state and government schemes and industry with about 75 % of placements.
- As Program Officer of Industrial Training Programs, coordinated about 250 batches of Technology and Skill Up gradation programs and about 3000 working employees / executives of Tiruppur cluster have completed up skill training successfully.

**Recent publications:****National**

- Sivagnanam, et al, "Blended yarns for fashion garment", Apparel Today, 2005.
- Sivagnanam, et al, "A New 3D concept for weaving medical textiles" Textile Asia, Oct 2009
- Sivagnanam et. al, "Novel Properties of splittable fibres" fibre2fashion online publications.
- Sivagnanam et. al, "Micro fibres" fibre2fashion online publications.
- Sivagnanam, et al, "New 3D weaving concept for manufacturing of medical textiles", P69, Indian Textile Journal, Feb 2010.
- Sivagnanam, et al, "Eri silk knits for suitability in fashionable garment", Indian Textile Journal; Apr 2011, Vol. 121 Issue 7, p44

**International**

- Sivagnanam et al, "Vanya silk for Non Traditional Textile and Fashion Market" Silk for Green World and Sustainable Development, ISC, Thailand
- Sivagnanam, et al, "Study on Moisture Behaviour of Weft knitted Interlock Spacer Fabrics", International journal of ChemTech Research, Vol.8 / 2015
- Sivagnanam, et al, "Detailed Investigation of Weft Knitted Interlock Fabrics for Comfort Properties to Suit for Active and Sportswear Application", International Journal of Engineering and Advanced Technology, (IJEAT), ISSN: 2249-8958, Vol.8 / Issue 5, June 2019

**Cumulative Impact factor:**

Total Citation:

h- index:

i10- index:



*CURRICULUM VITAE*

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---

Educational qualification:

- B.Sc.,
- M.C.A.

Professional experience:

- 07 Years

Honours and Awards:

- 

Recent publications:

National

- 

International

- 

Cumulative Impact factor:

Total Citation:

h- index:

i10- index:

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---

Educational qualification:

- M.Tech.,
- Ph.D

Professional experience:

- 30 Years

Honours and Awards:

- 

Recent publications:

National

- 09

International

- 10

Cumulative Impact factor: -----

Total Citation:

h- index:

i10- index:



**CURRICULUM VITAE**

Name: Dr. A. Senthilrajan  
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 Fax: -----  
 Email: agni\_senthil@yahoo.com

**Educational qualification:**

- BE.,
- MBA.,
- M.sc(IT).,
- M.Phil.,
- Ph.D.

**Professional experience:**

- 19 Years

**Honours and Awards:**

- Nominee for world who is who book for year 2008 and 2009
- National Conference Organised.
  1. Convenor and organised National level Conference on Artificial Intelligence and Parallel computing – September 8th and 9th,2006.
  2. Convenor and organised National conference on Information Technology and- Business management October 30th and 31st,2009.
  3. Convenor and organised National conference on Information computing and Management challenges in contemporary business - 21st and 22nd,2011.
- International Conference Organised:
  1. Convenor and organized international Conference on Computing and Information Technology - September 23rd and 24th, 2013. Alagappa University – Karaikudi.
  2. Convenor and organized two days IT Skill Show International Conference on Advancements in Computing Resources (SSICACR – 2017) – 15th & 16th February 2017. Alagappa University – Karaikudi.
- Other Training Programs
  1. Hardware maintenance
  2. S/W Installation
  3. Troubleshooting
  4. Network administration.
  5. Team building
  6. (i). Social development program at Sheshaiya homes, Austinpatti, Madurai.  
(ii). Social development (Outreach program), Sumanahalli, Bangalore.
  7. Village Extension Programme at Thiruvelangudi, 11-13 October 2018.

**Recent publications:**

- “Segmentation Chick’s Image Using Artificial Neural Network”, in International Conference on Computing, Communication and Information Technology (CCIT 2018), ISBN: 978-1-63248-162-7, DOI: 10.15224/ 978-1-63248-162-7-06, Page: 11-14. 2. “Multimedia Cloud Computing for Agriculture”, in International Multi - Conference on Computing, Communication, Electrical & Nanotechnology (I2CN-2K18) at Kottayam, Kerala on April 26-27, 2018, presented and published.
- “Removal of Weeds in Agriculture field using Wavelet Transformation in Image Processing” International Journal on Recent and Innovation Trends in Computing and Communication (IJRITCC), Vol – 6, Issue – 2, ISSN: 2321-8169, Impact Factor: 5.837 Page: 19-26, February 2018.
- Bavithra Matharasi, Dr.A.Senthilrajan , “Sentiment Analysis using a Novel approach to classify sentiments in social networking data”, International Journal of Advanced Research in Computer Science - 2018, Vol – 9, ISSN: 0976-5697, Page: 297-301.



- J.Tamilselvan, Dr.A.Senthilrajan, “Adding Text Document to cluster based on the similarity measures”, International Journal of Pure and Applied Mathematics - 2018, Vol – 118, ISSN: 1314-3395, Page: 3069-3074.
- “Segmentation in Manganethi Plant using Mathematical Morphology”, International Journal of Advanced Research in Computer and Communication Engineering (IJARCCE), Vol – 6, Issue – 10, ISSN 2278-1021, Impact Factor: 5.947, Page: 291-293, October 2017.
- N.Vijayalakshmi, “A hybrid approach for sarcasm detection of social media data”, International Journal of Scientific and Research Publications - 2017, Vol – 7, Issue – 5, ISSN: 2250-3153, Page: 327-336.
- Bavithra Matharasi, Dr.A.Senthilrajan, “Sentiment Analysis of Twitter Data using Naive bayes with Unigran Approach”, International Journal of Scientific and Research Publications - 2017, Vol – 7, Issue – 5, ISSN: 2250-3153, Page: 337-341.
- “Image Reduction Using Edge Based Region of Interest”, IOP conf.series: Materials Science and Engineering - 2017, doi: 10.1088/1757-899X/225/1/012248.
- M.Sangeetha, Dr.A.Senthilrajan, “Super Resolution – A Review”, International Journal of Engineering Research & Technology (IJERT) – 2016, Vol – 4, Issue – 21, ISSN: 2278-0181, Page: 36-40.
- Gopala Krishna Nagasarapu, Dr.A.Senthilrajan, “Robust Image Desoising using Infantile Fixation of Non Local Euclidean Median in Patch Space”, International Refereed Journal of Engineering and Science(IRJES) – 2016, Vol – 5, Issue – 8, ISSN: 2319-1821, Page: 24-28.
- M.Sangeetha, Dr.A.Senthilrajan, “Analysis of methods in wavelet domain for image resolution”, International Journal of Advanced Research Trends in Engineering and Technology (IJARTET) - 2016, Vol – 3, ISSN: 2394-3785, Page: 628-631.
- J.Tamilselvan, Dr.A.Senthilrajan, “Constructing and maintaining large web repositories through continuous web crawling”, International Journal of Advanced Research Trends in Engineering and Technology (IJARTET) - 2016, Vol – 3, ISSN: 2394-3785, Page: 605-608.
- Gopala Krishna Nagasarapu, Dr.A.Senthilrajan, “Implementation of speech steganography using spread spectrum with wavelet domain”, International Journal of Advanced Research Trends in Engineering and Technology (IJARTET) - 2016, Vol – 3, ISSN: 2394-3785, Page: 588-594.
- Bavithra Matharasi, N. Vijayalakshmi, Dr.A.Senthilrajan, “A study on Various Techniques and Challenges in Sentiment Analysis”, International Journal of Advanced Research Trends in Engineering and Technology (IJARTET) - 2016, Vol – 3, Special issue – 20, ISSN: 2394-3777, Page: 474-478.
- Bavithra Matharasi, N. Vijayalakshmi, Dr.A.Senthilrajan, “Object Oriented Graph Structure to Represent the Dataset in online Social Network”, 2015, doi: 10.3850/978-981-09-4426-1-086, ISBN: 978-981-09-4426-1, Page: 314-321.
- “Pest Control in Paddy using Segmentation in Image Processing”, Engineering Sciences International Research Journal, Vol – 3, Issue – 2 (2015), ISSN: 2320-4338, ISBN: 978-931-84124-55-7, Page: 82-85.
- Gopala Krishna Nagasarapu, Dr.A.Senthilrajan, “Generalized non-local mean algorithm for De-Speckling of Digital images”, International Journal of Emerging Trends in Science and Technology (IJETST) - 2015, Vol – 2, Issue – 8, ISSN: 23489480, Page: 3077-3082.
- “Efficient Image Retrieval In Real Time Database Using Grey Model Technique”, Mathematical Sciences International Research Journal – 2015, Vol - 4, Issue - 1, ISSN: 2278 – 8697, ISBN: 978-93-84124-36-6, Page: 216-219.

#### National Conference:

- Attended the Indian Cyber Congress (INCYCON) on 28 & 29 September 2018 at Sree Vidyanikethan Engineering College(SVCE), Tirupati, Andhra Pradesh.
- Attended the one day orientation workshop on the roles and responsibilities of the university and its Swayam coordinators on 2nd February 2018 at AICTE office, Nelson Mandela Marg, Vasant Kunj, New Delhi.
- A.Fathima Mubeen, Dr.A.Senthilrajan, “ Optimal Features Selection and Classification of Healthcare Big data in Medical Internet of Things”, National conference on Cyber Security (NCCS – 2018) organized Computer Science, Alagappa University, Karaikudi held on 25th January 2018. Paper was presented
- K.Sheela, Dr.A.Senthilrajan, “Rice quality analysing using Image Processing Technique”, National conference on Cyber Security (NCCS – 2018) organized Computer Science, Alagappa University, Karaikudi held on 25th January 2018. Paper was presented.
- Attended the DIDAC INDIA 2016 on September 28th to 30th at Bangalore International Exhibition Centre.





- Attended the RUSA – One Day Training on 23rd August 2016 at Anna University.
- Attended ICTACT Bridge 2016 Chennai edition on 24th February 2016.
- National conference on “Engineering Applications for Developing Smart Cities” held during March 30, 2015 organized by Dhirajlal Gandhi college of technology, Salem.

**International Conference:**

- “Segmentation Chick’s Image Using Artificial Neural Network”, in International Conference on Computing, Communication and Information Technology (CCIT 2018) at Rome, Italy on October 27-28, 2018
- “Multimedia Cloud Computing for Agriculture”, in International Multi - Conference on Computing, Communication, Electrical & Nanotechnology (I2CN-2K18) at Kottayam, Kerala on April 26-27, 2018.
- J.Tamilselvan, Dr.A.Senthilrajan, “Adding text document to cluster based on the similarity measures”, in International conference on Advances in Computer Science and Technology (ICACSET’18) held during January 19-20, 2018 at Kalasalingam Academy of Research and Education, Krishnankoil.
- “Design on Benefit Mechanism of the Information and Communication Technology Based on Boolean Law”, in International Conference on Advances in Mathematics and Computer Science held during December 14-16, 2017 at V.V. Vanniaperumal College for Women, Virudhunagar.
- “Defective Chicks Deduction Based on Texture Feature Analysis Using Random Transform”, in International Conference on Applied Science and Engineering held during December 05-07, 2017 at Seoul, South Korea.
- Bavithra Matharasi, N. Vijayalakshmi, Dr.A.Senthilrajan , “A study on Various Techniques and Challenges in Sentiment Analysis”, in International conference on Innovations in Computer Science & Technology – 2016 at Alagappa University, Karaikudi. 16. Gopala Krishna Nagasarapu, Dr.A.Senthilrajan , “ Implementation of speech steganography using spread spectrum with wavelet domain ”, in International conference on Innovations in Computer Science & Technology – 2016 at Alagappa University, Karaikudi.
- J.Tamilselvan, Dr.A.Senthilrajan , “Constructing and maintaining large web repositories through continuous web crawling”, in International conference on Innovations in Computer Science & Technology – 2016 at Alagappa University, Karaikudi.
- M.Sangeetha, Dr.A.Senthilrajan , “Analysis of methods in wavelet domain for image resolution”, in International conference on Innovations in Computer Science & Technology – 2016 at Alagappa University, Karaikudi.
- “Diagnosing Infective Diseases in Paddy Using Mobile Device”, in International Conference on Symposium on Electrical, Electronic Engineering and Digital Technology”(SEDT 2016) at Tokyo, Japan on December 6-8, 2016. 20. “Image Reduction Using Edge Based Region of Interest”, in International Conference on Advanced Material Technologies”(ICAMT 2016) at Visakhapatnam, Andhra Pradesh on December 27-28, 2016.

Cumulative Impact factor:

Total Citation:

h- index:

i10- index:



**CURRICULUM VITAE****Name: Dr. S. RAJARAM**

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**Educational qualification:**

- M.A (Tamil),
- M.A (Linguistics),
- M.Phil.,
- B.Ed.,
- Ph.D.

**Professional experience:**

- 20 Years

**Honours and Awards:**

- Best Research Paper Award for “Va Supa Manickanarin Ilakkiya Parvai” Presented by All India Universities Tamil Teachers Association during May 2002 behalf of V.SP.Manickanar Endowment.
- Best Research Paper Award for “Sanga Ilakkiyathil Manai Marutchi” Presented by All India Universities Tamil Teachers Association during May 2005 behalf of V.SP.Manickanar Endowment.
- Best Research Paper Award for “Kadal Seetram Thadukkum Kandal” Presented by ‘ARR’ All India Research Forum December 2005.
- Best NSS Programme Officer Award presented by Alagappa University, Karaikudi, 2009.
- Best Research Paper Award for “Peedandru-Meel Vaasippu” Presented by ‘ARR’ All India Research Forum December 2011.

**Recent publications:**

- Thirumuruhatrupadaiyil Arupadai veedu – Sanskritisation, International Seminar on Place names, Tamil Sakthi Research Forum & National College, Trichirappalli, 25.09.2011
- Kalitriyanai Niraiyil Sanskritisation, International Conference on Agananooru, Sangam Literature Research Forum & Ethiraj Women’s College, Chennai, 09.12.2011
- Peedandru – Meel Vasippu, 7th International Seminar, AAR All India Research Forum & Sengunthar College of Arts and Science, Thiruchengodu, 17&18.12.2011
- Tholkappiyamum Irayanar Agapporulam- Karpu Marabukal & Tholkappiyamum Maranahapporulam- Ilakkana Valarchi, Workshop on Aspects of Tholkappiam and Later grammatical works on Agam concept, Alagappa University, Karaikudi & CICT, Chennai, 04.01.2012 to 13.01.2012
- Inai Vizhaichu, 43rd All India University Tamil Teachers Association Seminar, Tamil Sangam, Bangalore, 19&20.05.2012
- Silappathikaram Suttum Inthezhuthu Manthiram, VIII th International Seminar on AAR International Research Forum, Karpagam University, Coimbatore, 22.12.2012
- Artrupadai Ilakkia Seiyul Kattamaippil Uyarthinai Suttu, International Research Seminar On Pathupattu, Kongunadu Arts and Science College, Coimbatore, 23.12.2012
- Karkala Padalathil Tamizhar Panpattu Nilaviyal, International Seminar on Kalanthorum Kampan, Kampan Tamil Research Centre, Karaikudi, 23 & 24.03.2013
- Tholkappiyamum Kootru muraikalum, Seminar on Tholkappiya Ilakkiyak kotpadukal, CICT, Chennai & Tamil Research Centre, Ganeshar Arts and Science College, Melaisivapuri, 08.01.2014
- Sanga Ilakkiyathil Manitha Urimaikal, Seminar on Palthurai Thotruvaaiyku Sanga Ilakkiyathin Pangalippu, CICT, Chennai & Dep’t of Tamil, Alagappa Gov’t Arts College, Karaikudi, 09.01.2014
- Vazhipadugalum Thinaikkotpadugalum, Workshop on Chevviyal Ilakkiyangalil Tamizhar Vazhipaattu Marabugal, CICT, Chennai & Alagappa University, Karaikudi, 22.01.2014



- Ra. Ragavaiyanganin Urainadai Thiran, Workshop on Pazhanthamizh Uraiyasiriyarkalin Nadaikkotpadu, CICT, Chennai & Alagappa University, Karaikudi, 03.03.2014
- Tamil Haigoo Kavithaikalil Puthiya Pokkuhal, National seminar on New Trends on 20 th Century Tamil Puthu kavithaikal, Urumu Danalakhshmi College, Trichirapalli, 30.09.2015 & 01.10.2015
- Tholkapiathil Neethi, Seminar Collection on Tamil Ilakkiathil Neethi, Ulaga Tamil Sangam, Madurai, 23.01.2016.
- Thiruvagasathil Madurai, International Seminar on Ilakkiya Pathivuhail Madurai, Meenakshi Govt Womens College, Madurai, 25.02.16 & 26.02.16
- Chitrakooda malai Punaivu – Kambarum Valmikiyum, World Tamil Research Seminar On Kambanil Iyarkai, Karaikudi Kamban Kazhaham & Andaman Tamil Ilaikkiya Mandram, Andaman, 10.04.2016
- Tholkappiyathil Pillai – Collinaiyu Porunmai, International Seminar on Tamil Culture, Center for Tamil Culture , Alagappa University – 22.10.2016 & 23.10.2016
- Vayinum Kaiyinum Vaguththa Kalaihal, National Seminar on the role of Arts in Tamil Culture, Centre for Tamil Culture & Department of Fine Arts, Alagappa University, Karaikudi , 16.12.2016 .
- Barathidasanin Samaththuva kolhai, National Seminar on Contemporary Tamilian and Barathidasan's work, Department of Tamil, Alagappa University, Karaikudi, 20.12.2016 & 21.12.2016 .

Cumulative Impact factor:

Total Citation:

h- index:

i10- index:



**CURRICULUM VITAE**Name: **Dr. P. MADHAN**

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Educational qualification:

- M.A.,
- M.Phil.,
- Ph.D

Professional experience:

- 14 Years

Honours and Awards:

- 

Recent publications:

National

- Madhan, P. "TO END VIOLENCE AGAINST WOMEN" GEM NATIONAL JOURNAL OF WOMEN'S STUDIES, vol: VI, ISSN: 2320-6403, Page No: 100

International

- Madhan, P. "WOMEN CHAMPIONS OF JUSTICE: A COMPARISON OF KANNAKI AND PORTIA" LITERARY INNOVATIONS –A Bi-Annual International Literary Journal. Vol: II No: 1,ISSN: 2279-0128,Page No:68
- Mathan, P. "A THEMATIC EXPLORATION OF BERNAD SHAW'S PYGMALION" LITERARY INNOVATIONS –A Bi-Annual International Literary Journal. ISSN: 2279-0128Vol: III, ISSUE: 1,Page No: 56
- Mathan, P. "CULTURAL CONFLICTS AND ETHNIC ANXIETY IN SIDHWA'S AN AMERICAN BRAT" LITERARY INNOVATIONS –A Bi-Annual International Literary Journal. ISSN: 2279-0128, Vol: III, ISSUE: 2, Page No: 38
- Mathan, P. "THE TRANSCULTRUAL PHASE IN AMITAV GHOSH'S THE HUNGRY TIDE: A STUDY" LITERARY INNOVATIONS –A Bi-Annual International Literary Journal. ISSN: 2279- 0128, Vol: III, ISSUE: 2,Page No: 62
- Mathan, P. "AN ANALYSIS OF T.S. ELIOT'S POETIC TECHNIQUES" LITERARY INNOVATIONS –A Bi-Annual International Literary Journal. ISSN: 2279-0128, Vol: IV, ISSUE: 1,Page No: 20
- Madhan, P. "AN ANALYSIS OF CHALLENGES OF WOMEN IN INDIA AND SUGGESTIVEREMEDIES FOR THEIR EMPOWERMENT" Social Sciences International Research Journal, ISSN: 2395-0544.
- Madhan, P. "IMPACT OF MONEY ON INDIAN HOUSEHOLDER IN RUTH PRAWER JHABVALA'S THE HOUSEHOLDER" International Journal of Law and Social Sciences, ISSN: 2394-4277.

Cumulative Impact factor:

Total Citation:

h- index:

i10- index:



**CURRICULUM VITAE**

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Email: ekannapiran@gmail.com

Educational qualification:

- M.Sc.,
- M.Phil.,
- Ph.D

Professional experience:

- 18 Years

Honours and Awards:

- 

Recent publications:

National

- Ravindran J, G. Geetha Priya and E. Kannapiran, 2011. Effect of Concentrating and Exposing the Bioluminescent Bacteria to the Non Luminescent allo – Bacterial Extracellular Products on their Luminescence. *Journal of Luminescence*, 26: 23–28.
- Kannapiran, E and J. Ravindran, 2011. Phosphate mineralizing bacteria in the coral reefs of Gulf of Mannar. *Journal of Basic Microbiology*, (Wiley Blackwell, London) 51: 1–8.
- Kalaigandhi V, E. Kannapiran, Hari Muraleedharan and A. Michael, 2011. nifH gene of reference being the source to study the marine Azotobacter sp. *J. Sci. Trans. Environ. Technov.*, 5(1) : 37 - 42.
- Kalaigandhi V and E. Kannapiran, 2011. Qualitative and Quantitative Examination of Plant Growth Hormone Production using Azotobacter Isolated from Seagrass Ecosystem of Thondi. *Asian Journal of Microbiol. Biotech. Env. Sc. Vol. 13(4):1-6.*
- Sri Ramkumar, V and E. Kannapiran., 2011. Isolation of total heterotrophic bacteria and phosphate solubilizing bacteria and in vitro study of phosphatase activity and production of phytohormones by PSB. *Archives of Applied Science Research*, 3 (5):581-586 (ISSN 0975-508X).
- Sri Ramkumar V, E. Kannapiran and M. Palanisamy, 2011. Prevalence and distribution of total heterotrophic bacteria from Kottaipattinam coast, Palk Strait, Southeast coast of India, *Archives of Applied Science Research*, 3 (5):593-598 (ISSN 0975-508X).
- E. Kannapiran and V. Sri Ramkumar, 2011. Isolation of phosphate solubilizing bacteria from the sediments of Thondi coast, Palk Strait, Southeast coast of India *Annals of Biological Research*, 2 (5) : 157-163 (ISSN 0976-1233).
- Sri Ramkumar V, E. Kannapiran and M. Magesh, 2011. Variations in heterotrophic bacteria and phosphate solubilizing bacteria from Karangadu and Devipattinam coast, Palk Strait, Southeast coast of India. *Annals of Biological Research*, 2 (5): 602-609 (ISSN 0976-1233).
- E. Kannapiran and V. Sri Ramkumar, 2011. Inoculation effect of nitrogen-fixing and phosphate-solubilizing bacteria to promote growth of black gram (*Phaseolus mungo* Roxb; Eng) *Annals of Biological Research*, 2 (5) :615-621 (ISSN 09761233).
- Ravindran J, E. Kannapiran, B., Manikandan, R Mani Murali and K. Anthony Joseph, 2012. Bleaching and secondary threats on the corals of Palk Bay: A survey and proactive conservation needs. *Indian Journal of Geo-Marine Sciences*, Vol. 41 (1): 883-890. ISSN 0379-5136, Impact factor 0.183.
- Kannapiran E and N.K. Ahila, 2012. Coral Diseases: An Overview, *Proceedings of the National Conference on Aquatic Animal Health and Management held at Faculty of Marine Sciences, CAS in Marine Biology, Annamalai University, Parangipettai, from 14 to 15.09.2012*, 32-36.
- Prakash S, S. Ravikumar, K. V. R. Reddy and E. Kannapiran, 2013. Spermicidal activity of Indian seaweeds: an in vitro study, *Journal of Andrologia*, *Andrologia* 2013, 1–9. (Wiley Blackwell Publishers). (ISSN: 1439-0272) Impact factor: 1.546.



- Prakash S, NK. Ahila, S. Ravikumar and Kannapiran E, 2013. Phenotypic and Genotypic Probing of Biofertilizing Halotolerant Azospirillum Spp. and Bacillus Spp. Middle-East Journal of Scientific Research 15 (1): 128-133, 2013. ISSN 19909233.
- Ravindran J, E. Kannapiran, B. Manikandan, K. Francis, Shruti Arora, E. Karunya, Amit Kumar, S. K. Singh and Jiya Jose, 2013. UV-absorbing bacteria in coral mucus and their response to simulated temperature elevations, Accepted in Coral Reefs. ISSN 0722-4028, Impact factor 3.662.
- Ahila NK, E. Kannapiran, J. Ravindran and V. Sri Ramkumar, 2013. Studies on methanogenic consortia associated with mangrove sediments of Ennore. Accepted in the Journal of Environmental Biology. ISSN 0254-8704, Impact factor 0.682.
- S. Prakash, R. Ramasubburayan, P. Iyapparaj, N. K. Ahila, V. Sri Ramkumar, A. Palavesam & G. Immanuel, E. Kannapiran, 2015. Influence of physicochemical and nutritional factors on bacterial diversity in mangrove sediments along the southwest coast of Tamilnadu, India, Environ Monit Assess, 187:562
- Sri Ramkumar V, S. Prakash, R. Ramasubburaya, R. Baburajendran and E. Kannapiran, 2016. Seaweeds: A Resource for Marine Bionanotechnology. Enzyme and Microbial Technology, Accepted.
- Prakash S, and E. Kannapiran, 2016. In vitro - Scientific evaluation on antimicrobial, antioxidant, cytotoxic properties and phytochemical constituents of traditional coastal medicinal plants. Biomedicine & Pharmacotherapy 83:648– 657.
- Ahilaa N.K, V. Sri Ramkumar, S. Prakash, B. Manikandan, J. Ravindran, P.K. Dhanalakshmi, E. Kannapiran. Synthesis of stable nanosilver particles (AgNPs) by the proteins of seagrass Syringodium isoetifolium and its biomedical properties Journal: Biomedicine & Pharmacotherapy 84:60–70.

#### International

- Sri Ramkumar V, S. Prakash, R. Ramasubburaya, R. Baburajendran and E. Kannapiran, 2016. Seaweeds: A Resource for Marine Bionanotechnology. Enzyme and Microbial Technology, Accepted.
- Prakash S, and E. Kannapiran, 2016. In vitro - Scientific evaluation on antimicrobial, antioxidant, cytotoxic properties and phytochemical constituents of traditional coastal medicinal plants. Biomedicine & Pharmacotherapy 83:648– 657.
- Ahilaa N.K, V. Sri Ramkumar, S. Prakash, B. Manikandan, J. Ravindran, P.K. Dhanalakshmi, E. Kannapiran. Synthesis of stable nanosilver particles (AgNPs) by the proteins of seagrass Syringodium isoetifolium and its biomedical properties Journal: Biomedicine & Pharmacotherapy 84:60–70.

Cumulative Impact factor: 28.5

Total Citation: 163

h- index: 7

i10- index: 5

