VAAGDEVI COLLEGE OF ENGINEERING
AUTONOMOUS
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING
M.TECH. (Software Engineering)

COURSE STRUCTURE
(R18 Regulations applicable for the batches admitted from Academic Year 2018-19 onwards)

I-SEMESTER

Course Outcome S.No	Year/Semester I Sem	Subject Name (Subject Code) Data Structures and Algorithms(M18CS01)	No. of HoursL:3 T:0 P:0	Credits: 3
1		Understand the basics of Algorithms and Analyze the performance and complexity of Algorithms		
2		Explain the concepts of basic data structures: Linear and Non Linear and compare how the storageand retrieval of data is done on these data structures.		
3		Gain knowledge about applications of data structures including creating, inserting, deleting, searching and sorting of data for each data structure.		
4		Experiment with using linear data structures like stacks, queues and linked list for real time applications.		
5		Distinguish between Trees and Graphs and the areas where best applicable.		
6		Be able to decide an appropriate data structure for any specific problem.		
Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Software Development Methodologies (M18SW01)	No. of Hours L:3 T:0 P:0	Credits: 3
1		Review the basics of software engineering, processes, models and practices.		
2		Understand software requirement engineering and its application using various models.		
3		Understand design thinking at varied levels i.e architectural and component level and to also user interface		
4		Understand testing and its theoretical background along with metrics to test source code, applications and maintenance of application		
5		Develop understand on risks, risk identification, risk projection, Risk refinement, risk management and dealing with change management, survey few tools for configuration management.		
Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Cloud Computing (M18CS05)	No. of Hours L:3 T:0 P:0	Credits: 3
1		Discuss main concepts key strengths, and limitations for cloud computing		
2		Develop the architecture along with specific infrastructure on cloud computing including SaaS, PaaS , public cloud, private cloud, hybrid cloud, etc		
3		Explain the issues on cloud computing along with security, privacy, and interoperability		
4		Choose and use the appropriate technology, methods on these issues		
5		Identify problems, and explain, analyze, and evaluate various cloud computing solutions.		
6		Provide the appropriate solutions on cloud computing based on the application.		
Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Component Based Software Engineering (M18SW02)	No. of Hours L:3 T:0 P:0	Credits: 3

1	Understand component based software development, models and approaches
2	Demonstrate the role of team in building component based software development.
3	Identify the processes involved in Design of Software Component Infrastructures and study existing models.
4	Demonstrate the learnt principles in effective reuse and maintenance of software
5	Survey technologies that support implementation of component based software development

Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Internet Technologies and services(M18SW03)	No. of Hours L:3 T:0 P:0	Credits: 3
1	Survey client side technologies for web development.			
2	Understand life cycle of a java servlet and apply it to a develop software.			
3	Develop understanding on JSP and enhance the solution using JSP program.			
4	Create awareness on Struts framework and its application , develop complex solution using this framework.			
5	Introduce web services and service oriented architecture to develop seamless applications that are portable and highly interoperable.			

Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Software requirements and Estimation (M18SW04)	No. of Hours L:3 T:0 P:0	Credits: 3
1	To develop an understanding of software requirements and asses their nature.			
2	To analyze software requirement management.			
3	To be able to estimate the cost of software development by understanding various methods.			
4	To be able to draw conclusions on effort, schedule and cost estimation			
5	Survey tools for requirements management, software estimation tools.			

Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Object Oriented Software Engineering (M18SW05)	No. of Hours L:3 T:0 P:0	Credits: 3
1	To understand Scope of Object-Oriented Software Engineering, Software Life-Cycle Models, Software Process.			
2	To analyze role of teams, tools for the trade, testing.			
3	To be able to create reusable and portable applications.			
4	To be able to draw conclusions from requirement workflow.			
5	Design and implement workflow and maintain post delivery..			

Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Information Theory and Coding (M18SW06)	No. of Hours L:3 T:0 P:0	Credits: 3
1	Ability to learn about information and entropy			
2	Ability to learn about Hamming weight, minimum distance decoding and different types of codes.They also learn about syndrome calculation and design of an encoder and decoder.			
3	Understanding the sequential search and Viterbi algorithm			
4	Apply knowledge on text compression techniques. They also learn about speech and audio coding			
5	Apply knowledge on image compression, graphics interchange format, JPEG and MPEG standards.			

Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Research Methodology(M18MC01)	No. of Hours L:2 T:0 P:0	Credits: 2
1	Acquire knowledge on Research Design and statistical methods in research.			
2	Analyze the various methods in Data Collection, Data Organization and different approaches ofData Representation.			

3	Understand all the basic concepts required to prepare
	      a. Research synopsis
	      b. Dissertation
	      c. Writing a good research proposal

4	Interpret the Scope of Patent Rights and Administration of Patent System.

Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) English for Research Paper Writing(M18AC01)	No. of Hours L:2 T:0 P:0	Credits: 0
1	Obtain complete knowledge on Definition of a research paper, Purpose of writing any research paper , its Scope and Benefits.			
2	Understand the standard English formats .for scripting the best research paper.			
3	Analyze all the Qualitative and Quantitative Research Methodologies and the ethics of plagiarism.			
4	Explain the detailed process of writing and publishing any research paper and perform a case study on paper writing.			

Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Software Development Methodologies Lab (M18SW07)	No. of Hours L:0 T:0 P:4	Credits: 2
1	Review the basics of software engineering, processes, models and practices.			
2	Understand software requirement engineering and its application using various models.			
3	Understand design thinking at varied levels i.e architectural and component level and to also userinterface.			
4	Understand testing and its theoretical background along with metrics to test source code, applications and maintenance of application			
5	Develop an understand on risks, risk identification, risk projection, Risk refinement, risk management and dealing with change management, survey few tools for configuration management.			

Course Outcome	Year/SemesterI Sem	Subject Name (Subject Code) Cloud Computing Lab (M18CS10)	No. of Hours L:0 T:0 P:4	Credits: 2
1	Develop the architecture along with specific infrastructure on cloud computing, including SaaS, PaaS, IaaS, public cloud, private cloud, hybrid cloud, etc.			
2	Explain the issues on cloud computing along with security, privacy, and interoperability.			
3	Identify problems, and explain, analyze, and evaluate various cloud computing solutions.			
4	Provide the appropriate solutions on cloud computing based on the application.			

II - SEMESTER

Course Outcome S.No	Year/Semester II Sem	Subject Name (Subject Code) Software Quality Assurance and Testing (M18SW08)	No. of Hours L:3 T:0 P:0	Credits: 3
1	Apply modern software testing processes in relation to software development and project management.			
2	Create test strategies and plans, design test cases, prioritize and execute them.			
3	Ability to learn and manage incidents using software testing tools.			
4	Contribute to efficient delivery of software solutions and implement improvements in the software development processes.			
5	To gain expertise in designing, implementation and development of computer based systems and IT processes.			

6				
Course Outcome	**Year/SemesterII Sem**	**Subject Name (Subject Code)** Software Project and Project Management (M18CS18)	**No. of Hours** **L:3 T:0 P:0**	**Credits: 3**
1	Discuss and plan to execute projects based on required standards.			
2	Understand the range of tools used on project management**.**			
3	Analyze the concepts related on project governance and methodologies.			
4	Apply critical analysis on solving problems and planning process.			
5	Describe planning, Risk and issues management.			
6	Plan process, pragmatic planning service delivery and quality assurance			
Course Outcome	**Year/SemesterII Sem**	**Subject Name (Subject Code)** Software Architecture and Design Patterns (M18SW09)	**No. of Hours** **L:3 T:0 P:0**	**Credits: 3**
1	To understand the concept of patterns and the Catalog.			
2	To discuss the Presentation tier design patterns and their affect on: sessions, client access, validation and consistency.			
3	To understand the variety of implemented bad practices related to the Business and Integration tiers.			
4	To highlight the evolution of patterns.			
5	To learn how to add functionality to designs while minimizing complexity			
Course Outcome	**Year/SemesterII Sem**	**Subject Name (Subject Code)** Agile Software Development(M18SW10)	**No. of Hours** **L:3 T:0 P:0**	**Credits: 3**
1	Understand the architecture, creating it and moving from one to any, different structural patterns.			
2	Analyze the architecture and build the system from the components.			
3	Design creational and structural patterns.			
4	Learn about behavioral patterns.			
5	Do a case study in utilizing architectural structures			
Course Outcome	**Year/Semester IISem**	**Subject Name (Subject Code)** Bigdata Analytics (M18SW11)	**No. of Hours** **L:3 T:0 P:0**	**Credits: 3**
1	Understand what Big Data is and why classical data analysis techniques are no longer adequate			
2	Understand the benefits that Big Data can offer to businesses and organizations			
3	Understand conceptually how Big Data is stored			
4	Understand how Big Data can be analysed to extract knowledge			
5	Communicate with data scientists			
Course Outcome	**Year/Semester II Sem**	**Subject Name (Subject Code)** Software Security Engineering (M18SW12)	**No. of Hours** **L:3 T:0 P:0**	**Credits: 3**
1	An ability to analyze security and privacy and properties of systems.			
2	An ability to conduct user-cantered design for security engineering.			
3	An ability to understand programming constraints with systems security.			
4	An understanding of limitations and advantages of security protocols, functional and attacker perspectives, password authentication and various alternative systems.			
5	Discussing the Security adopting considerations and limitations			
6				
Course	**Year/SemesterI**	**Subject Name (Subject Code)** Business Process Management (M18SW13)	**No. of Hours**	**Credits: 3**

Outcome	Sem		L:3 T:0 P:0	
1	Develop new or improved innovative business processes from gap analysis through process design in support of a company's strategic objectives in a socially responsible manner.			
2	Develop business models that support a company's strategic objectives.			
3	Articulate the interdependence between financial and operational metrics used in value chain analysis to key decision makers.			
4	Appraise the impact on financial and operational performance of specific			
5	Evaluate the opportunities for business process and supply chain improvement based on currentbest practices across industries, as well as new breakthrough thinking.			
6	Analyze the key business processes that drive the value chain of an organization throughout theentire product life cycle.			

Course Outcome	Year/Semester IISem	Subject Name (Subject Code) Cyber Security(M18CN12)	No. of Hours L:3 T:0 P:0	Credits: 3
1	Understand the different kinds of security attacks			
2	Define a internetwork security model and identify the TCP			
3	Identify and classify the different types of attacks and suggest appropriate conventionalencryption algorithms to be applied.			
4	Gain complete knowledge in number system and areas of applications in public key cryptography algorithms.			
5	Interpret the importance of digital signatures, digital Certificates, Certificate Authority for electronic document transfer on internet.			
6	Demonstrate IP security architecture and explain how Pretty Good Privacy (PGP) and S/MIME provides Email privacy.			

Course Outcome	Year/Semester II Sem	Subject Name (Subject Code) Stress Management (M18AC02)	No. of Hours L:2 T:0 P:0	Credits: 0
1	Maintain a stress awareness log. Include identification of causes, symptoms, and analysis of effects.			
2	Gather information on current stress management techniques and evaluate personal relevance.			
3	Practice specific techniques, track effectiveness, and revise to meet personal preferences.			
4	Create an adaptable stress management plan for academic success incorporating selected techniques.			

Course Outcome	Year/Semester II Sem	Subject Name (Subject Code) Software Testing Lab(M18SW14)	No. of Hours L:0 T:0 P:4	Credits: 2
1	Understanding Selenium tool to perform testing			
2	Writing test suits for applications			
3	Construct and test simple programs.			
4	Understanding the use of bug tracking and testing tool			
5	Ability to learn any open source Testing tool			

Course Outcome	Year/Semester II Sem	Subject Name (Subject Code) Bigdata Analytics Lab (M18SW15)	No. of Hours L:0 T:0 P:4	Credits: 2
1	Understand what Big Data is and why classical data analysis techniques are no longer adequate			
2	Understand the benefits that Big Data can offer to businesses and organizations			
3	Understand conceptually how Big Data is stored			
4	Understand how Big Data can be analysed to extract knowledge			
5	Communicate with data scientists			

Course Outcome	Year/SemesterII Sem	Subject Name (Subject Code) Mini Project(M18SW16)	No. of Hours L:0 T:0 P:2	Credits: 2
1	Enhance students' knowledge in current technology			
2	Develop leadership ability and responsibility to execute the given task			
3	Enhance their employability skills along with real corporate exposure			
4	Elaborate the completed task and compile the report.			

III-SEMESTER

Course Outcome	Year/Semester IIISem	Subject Name (Subject Code) Information Retrieval Systems (M18SW17)	No. of Hours L:3 T:0 P:0	Credits: 3
1	Define Vector space model, understand various similarity coefficient and measures.			
2	Develop an Understanding on Relevance feedback, , Clustering, Regression Analysis, Thesauri.			
3	Apply various Retrieval Utilities for Information Retrieval.			
4	Develop an Understanding about Signature files, Duplicate document detection.			
5	Apply IR principles to locate relevant information large collection of data.			

Course Outcome	Year/Semester III Sem	Subject Name (Subject Code) Principles of Information Security (M18SW18)	No. of Hours L:3 T:0 P:0	Credits: 3
1	Understand the importance of Information Security.			
2	Describe the need and role of network security.			
3	Deploy the security Technologies and adapt various firewalls and Intrusion detection systems.			
4	Implement the techniques used in cryptography.			
5	Plan methods for information security and demonstrate it with Real Time problems.			

Course Outcome	Year/Semester III Sem	Subject Name (Subject Code) Computer Foreinsics (M18SW19)	No. of Hours L:3 T:0 P:0	Credits: 3
1	Understand the concepts of E-Commerce consumer application.			
2	Demonstrate Electronic payment systems using smart cards & Analyze broad view of Work flow and corporate Data warehouses.			
3	Customize the supply chain management and digital documents & Adapt advertise and Marketing based information.			
4	Discover new methods and strategy for E-commerce infrastructure.			
5	Discuss issues on privacy and legal E-commerce & Develop electronic and desktop video processing			

Course Outcome	Year/Semester III Sem	Subject Name (Subject Code) Advanced Optimization Techniques (M18MA01)	No. of Hours L:3 T:0 P:0	Credits: 3
1	Describe problem clearly, identify and analyze the individual functions.			
2	Analyze study on solving optimization problem.			
3	Translate verbal formula on optimization problem.			
4	Design algorithms, reliably to find an approximate solution.			
5	Evaluate and compare the performance of an algorithm.			
6	Discovery, study, understand and solve optimization techniques using algorithms.			

Course Outcome	Year/Semester III Sem	Subject Name (Subject Code) Waste Management (M18SE27)	No. of Hours L:3 T:0 P:0	Credits: 3
1	Evaluate the subject from the technical, legal and economical points .			
2	Learn solid waste management.			

3	Describe environment for sound management.
4	Understand a municipal solid waste management system.
5	Plan a solid waste management system for decision makers.
6	Design an incineration facility.

Course Outcome	Year/Semester IIISem	Subject Name (Subject Code) Embedded System Design (M18VL07)	No. of Hours L:3 T:0 P:0	Credits: 3
1		Explain the different embedded system design techniques and the metrics or challenges in designing them.		
2		Understand the complete architecture of 8051 and Advanced Processor.		
3		Demonstrate Software programming in Assembly language and High Level Language.		
4		Develop code for object oriented Programming, Embedded Programming using Macros and Functions in c++ and java.		
5		Classify the different Real Time Operating System (RTOS), RTOS Vx Works, Windows CE.		
6		Understand the Embedded Software Development Process and Tools.		

Course Outcome	Year/Semester III Sem	Subject Name (Subject Code) Dissertation Phase-I (M18SW20)	No. of Hours L:0 T:0 P:20	Credits: 10
1		Identify the problem by applying acquired knowledge.		
2		Analyze and categorize executable project modules.		
3		Choose efficient tools for designing project modules.		
4		Combine all the modules through effective team work after efficient testing		
5		Elaborate the completed task and compile the project report.		

IV-SEMESTER

Course Outcome	Year/Semester IV Sem	Subject Name (Subject Code) Dissertation Phase-II (M18SW21)	No. of Hours L:0 T:0 P:32	Credits: 16
1		Identify the problem by applying acquired knowledge.		
2		Analyze and categorize executable project modules.		
3		Choose efficient tools for designing project modules.		
4		Combine all the modules through effective team work after efficient testing		
5		Elaborate the completed task and compile the project report.		