P.K.R. ARTS COLLEGE FOR WOMEN

(Re-Accredited with 'A' Grade by NAAC)
An Autonomous Institution – Affiliated to Bharathiar University
No.21 Pariyur Road, Gobichettipalayam – 638476.

DEPARTMENT OF COMPUTER SCIENCE

Bachelor of Science – Artificial Intelligence & Machine Learning

RULES AND REGULATIONS

SCHOLASTIC COURSES
AND
CO-SCHOLASTIC COURSES

For the candidates admitted from the Academic Year 2023-2024 and onwards
Under CBCS PATTERN

Syllabus

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : I	23AMU01	PROGRAMMINGINC++	60	4

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recall the basics of OOPS	K1
CO2	Summarize the concepts of functions, operator overloading , pointers, exceptions	K2
CO3	Classify constructors, classes	K3
CO4	Analyze pointers , exceptions	K4
CO5	Determine operator overloading , strings, exceptions	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : II PRACTICAL : I	23AMU02	PROGRAMMING IN C++ -PRACTICAL	60	4

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recall the basics of OOPS	K1
CO2	Summarize the concepts of functions, operator overloading , pointers, exceptions	K2
CO3	Classify constructors, classes	K3
CO4	Analyze pointers , exceptions	K4
CO5	Determine operator overloading , strings,exceptions	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : III	23AMU03	DATA STRUCTURES	60	4

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recall various data structures, algorithms and sorting methods	K1
CO2	Describe the basic concepts of data structures, sorting and symbol table	K2
CO3	Use appropriate data structures for varied problems	K3
CO4	Examine different data structures and algorithms to find best solution for the real time applications	K4
CO5	Recommend a specific data structure and sorting algorithm for an application.	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-IV	FOUNDATION : I	23FCU01	ENVIRONMENTAL STUDIES	24	2

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Define environment, ecosystem, biodiversity, environmental pollution and social issues.	K1
CO2	Explain the natural resources, types of ecosystem, geographical classification of India, causes of environmental pollution and the problems related to the society.	K2
CO3	Identify the information related to environment and the resources to protect it.	K3
CO4	Analyze the classification of natural resources, energy flow in the ecosystem, threats to biodiversity, disaster management and the role of information technology in environment and human	K4
CO5	Assess the environmental issues with a focus on sustainability.	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : V	23AMU05	PROGRAMMING IN JAVA	60	4

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Outline the basic concepts of Java Programming Language	K1
CO2	Explain the concepts of tokens, control structures and looping, arrays, applet programming and Exception handling	K2
CO3	Apply java programming for practical solutions	K3
CO4	Analyze wide range of Applications by using java programming	K4
CO5	Determine the usage of all given concepts in the development of programming solutions	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : VI PRCATICAL : II	23AMU06	PROGRAMMING IN JAVA -PRACTICAL	48	4

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Outline the basic concepts of Java Programming Language	K1
CO2	Explain the concepts of Arrays and String	K2
CO3	Summarizes the concepts of Inheritance	K3
CO4	Demonstrate the interface and threads.	K4
CO5	Applying the java programming techniques in graphics and applets.	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART – III	CORE : VII PRACTICAL : III	23AMU07	INTERNET BASICS-PRACTICAL	48	2

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Outline the basics concepts of Internet, Web Browsers	K1
CO2	Explain the usage of internet concepts and analyze its components	K2
CO3	Apply the online information resources	K3
CO4	Analyze and utilize the appropriate Google Apps for education effectively	K4
CO5	Evaluate and determine the usage of all online information resources	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-IV	FOUNDATION : II	23FCU02	YOGA AND ETHICS	24	2

Contact hours per week: 2

Year	Semester	Internal Marks	External Marks	Total Marks
First	II	50	-	50

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recollect the basic terminologies in yoga and value education	K1
CO2	Demonstrate the importance of yoga, mental exercises, principles of life and components of values.	K2
CO3	Apply the techniques of dynamic & mental exercises and philosophical values in real life	K3
CO4	Classify the different types of asanas, stages of mind, analysis of thought, ethical values and social values.	K4
CO5	Evaluate how the yoga and value education make a person strong both physically and mentally	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : IX	23AMU09	PROGRAMMING IN PYTHON	60	4

Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Second	III	25	75	100

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recall syntax and semantics of various programming constructs.	K1
CO2	Illustrate the process of structuring data using lists, tuples, and dictionaries	K2
CO3	Identify appropriate programming structure for a given problem.	K3
CO4	Convert an algorithm into a python program	K4
CO5	Infer the object oriented concepts in python	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : X PRACTICAL : IV	23AMU10	PROGRAMMING IN PYTHON - PRACTICAL	48	4

Course Outcome

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recall the syntax and semantics of various programming constructs while writing simple programs	K1
CO2	Understand the basic programming concepts of python	K2
CO3	Organise data using lists, tuples, dictionaries and files and program using control structures, functions, class and objects	K3
CO4	Assume appropriate programming structure and data type to solve the given problem efficiently	K4
CO5	Interpret the given problem statement into a python program	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART: III	CORE : XI	23AMU11	Artificial Intelligence and Knowledge Representation	60	4

CO Number	CO Statement	Knowledge Level
CO1	Demonstrate fundamental understanding of the history of artificial intelligence (AI) and its foundations.	K1
CO2	Understanding the concepts of problem solving methods	K2
CO3	Demonstrate awareness and a fundamental understanding of various applications of AI techniques in intelligent agents, expert systems, artificial neural networks and other machine learning models.	K3
CO4	UnderstandingaboutthebasicconceptsofSoftwareagentsadrepresentationof knowledge	K4
CO5	Apply basic principles of AI in solutions that require problem solving, inference, perception, knowledge representation, and learning.	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART: III	CORE : XII ALLIED:III	23AMU12	INTERNET OF THINGS	48	3

Course Outcomes

On successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recall the general concepts of Internet of Things (IoT)	K1
CO2	Illustrate various IoT sensors and applications	K2
CO3	Apply design concepts to IoT solutions for Industrial 4.0	K3
CO4	Compare various IoT architectures	K4
CO5	Evaluate Design issues in IoT applications	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-IV	ABILITY ENHANCEMENT : I	23AEU01	INFORMATION SECURITY	24	2

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recall the fundamental concepts of Information Security, Risk and Security policies	K1
CO2	Discuss the concepts of Risks, vulnerabilities, ethical and privacy issues	K2
CO3	Apply the ideas in security planning and construct the policies	K3
CO4	Categorize the Privacy, Ethical Issues, Laws, Software Issues and Crimes	K4
CO5	Summarize Cryptography, cipher text and threats in information security	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-IV	NON - MAJOR ELECTIVE :I	23NMU01A	INDIAN WOMEN AND SOCIETY	24	2

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Know women status in Indian society as an academic discipline	K1
CO2	Interpret the various roles of women, challenges and issues faced by them in the society	K2
CO3	Find out solutions to their legal issues and product themselves from the violence against women emphasize on women entrepreneurship for their empowerment	K3
CO4	Critically analyze the lifestyle and challenges of women	K4
CO5	Discuss the importance of women health and issues related to women in general	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XIII	23AMU13	PROGRAMMING IN R	72	4

Contact hours per week: 6

Year	Semester	Internal Marks	External Marks	Total Marks
Second	IV	25	75	100

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Explain the importance of R Programming Languages	K1
CO2	Understand the basics in R programming in terms of constructs, control statements, String functions	K2
CO3	Understand the use of R for Big Data analytics	K3
CO4	Apply R programming for Text processing	K4
CO5	Appreciate and apply the R programming from a statistical perspective	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XIV PRACTICAL : V	23AMU14	PROGRAMMING IN R - PRACTICAL	72	4

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Explain the importance of R Programming Languages	K1
CO2	Understand the basics in R programming in terms of constructs, control statements, String functions	K2
CO3	Understand the use of R for Big Data analytics	K3
CO4	Apply R programming for Text processing	K4
CO5	Appreciate and apply the R programming from a statistical perspective	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XV ALLIED:IV	**23AMU15**	MACHINE LEARNING -BASICS	60	3

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Explain the importance of Machine Learning Basics	K1
CO2	Understanding of the fundamental issues and challenges of machine learning: data, Model selection, model complexity,etc	K2
CO3	Understanding of the strengths and weaknesses of many popular machine learning approaches.	K3
CO4	Explain about the concepts of computational learning theory and dimensionality reduction	K4
CO5	Appreciate the underlying mathematical relationships with in and across Machine Learning algorithms and the paradigms of supervised and un-supervised learning.	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-IV	Skill Enhancement: I	23SEAMU01	CAPSTONE PROJECT WORK (Based on AI & Machine Learning)	36	2

Preamble:

- To understand and select the task based on their core skills.
- To get the knowledge about analytical skill for solving the selected task.
- To get confidence for implementing the task and solving the real time problems.

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Illustrate a real world problem and identify the list of project requirements	**K3**
CO2	Judge the features of the project including forms, databases and reports	**K5**
CO3	Based on the analysis and interpretation of the data collected, student will be able to arrive at logical conclusions and propose suitable recommendations on the project	**K6**
CO4	Designcodetomeettheinputrequirementsandtoachievetherequiredoutput	**K6**
CO5	Compose a project report incorporating the features of the project	**K6**

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-IV	ABILITY ENHANCEMENT : II	23AEU02	CONSUMER RIGHTS	24	2

Course Outcomes

On the successful completion of the course, students will be able to:

CO Number	CO Statement	Knowledge Level
CO1	Memorize the procedure of redress of consumer complaints, and the role of different agencies in establishing product and service standards	K1
CO2	Explain the Consumer Protection Law in India	K2
CO3	Impart sound practical grounding about the practice of consumer law and the procedure Followed	K3
CO4	Evaluate the regulations and legal actions that helps to protect consumers	K4
CO5	Analyse the knowledge and skills needed for a career in this field	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XVI	23AMU16	MACHINE LEARNING TECHNIQUES	72	5

Course Outcomes:

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the basic concepts and techniques of Machine Learning.	K1
CO2	Explain the regression methods, classification methods, clustering methods.	K2
CO3	Understand the inference and learning algorithms for the hidden Markov model.	K3
CO4	Demonstrate Dimensionality reduction Techniques	K4
CO5	Appreciatetheunderlyingmathematicalrelationshipswithinandacr ossMachine Learning algorithms and the paradigms of supervised and un-supervised learning.	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XVII PRACTICAL : VI	23AMU17	MACHINE LEARNING - PRACTICAL	72	4

Course Outcomes:

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Gain knowledge about basic concepts of Machine Learning.	K1
CO2	Identify machine learning techniques suitable for a given problem	K2
CO3	Apply suitable machine learning techniques for various applications.	K3
CO4	Compare various supervised and unsupervised learning algorithms	K4
CO5	Assess strengths and weaknesses of popular machine learning approaches.	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XVIII	23AMU18	PROJECT WORK	72	-

Contact hours per week: 6

Year	Semester	Internal Marks	External Marks	Total Marks
Third	**V**	**-**	**-**	**-**

Preamble

To expose the students to practice themselves and find solution the problems in the respective area.

Course Outcomes

On the successful completion of the course, students will be able to

CO NUMBER	CO Statement	Knowledge Level
CO1	Remember the thrust areas of project	K1
CO2	Demonstrate the problem pertaining to the domain	K2
CO3	Apply various algorithms in their relevant field	K3
CO4	Explore the real time applications	K4
CO5	Evaluate demographic variables and factors influencing software development	K5

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyse; K5 – Evaluate.

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

POs / COs	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7
CO 1	9	9	9	9	9	9	9
CO 2	9	9	9	9	9	9	9
CO 3	9	9	9	9	9	9	9
CO 4	9	9	9	9	9	9	9
CO 5	9	9	9	9	9	9	9
Total Contribution of COs to POs	**45**	**45**	**45**	**45**	**45**	**45**	**45**
Weighted Percentage of COs Contribution to POs	2.68	2.87	2.98	3.30	4.75	4.80	5.38

Level of correlation: 0 – No correlation; 1 – Low correlation; 3 – Medium correlation; 9- High correlation between COs and POs. As per UGC Notification

****Viva-Voce will be conducted in the ESE (VI Semester)**

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XIX ELECTIVE : I	23AMU19A	DEEP LEARNING	60	5

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Explain the importance of Deep Learning Basics	K1
CO2	Understand the basic concepts and techniques of Deep Learning	K2
CO3	To understand and apply the Machine learning principles	K3
CO4	To study the deep learning architectures	K4
CO5	Explore and create deep learning applications with tensor flow	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XIX ELECTIVE : I	23AMU19B	BUSINESS DATA ANALYTICS	60	5

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand and critically apply the concepts and methods of business analytics	K1
CO2	Demonstration the various methodologies of descriptive statistics	K2
CO3	Understanding of modeling uncertainty and statistical inference	K3
CO4	Understanding of analytical frameworks.	K4
CO5	Understanding of Social and collaboration Networks	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XIX ELECTIVE : I	23AMU19C	SOFTWARE AGENTS	60	5

Contact hours per week: 5

Year	Semester	Internal Marks	External Marks	Total Marks
Third	V	25	75	100

Preamble

To explain the fundamentals of agents and agent programming paradigms and explain about agents and security

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understanding the fundamentals of agents and agent programming paradigms.	K1
CO2	Discussing the basics of java agents.	K2
CO3	Learning the concepts of multi valent systems.	K3
CO4	Understanding the concepts of intelligent software agents.	K4
CO5	Understanding the agents and security.	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XX OPEN ELECTIVE		INTERNET FOR EVERYONE	48	2

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Outline the basic concept of the Internet, World Wide Web and Web browsers	K1
CO2	Explain the Knowledge of Finding Information in the Internet and awareness on Internet Security and Privacy	K2
CO3	Apply tips for effective use of Email, Advantages and Disadvantages of Email	K3
CO4	Analyze the Possibilities of Social Networking, Learning discussion forum software & effective use of video conferencing	K4
CO5	Evaluate the learn Blogging & Making Money in the Internet	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XX OPEN ELECTIVE		BASICS OF COMPUTER TECHNOLOGY	48	2

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Recall the basics of Computer	K1
CO2	Illustrate the concepts of data communication and Computer networks	K2
CO3	Ultilize Middle ware and Gateways	K3
CO4	Analyze the concepts of Mobile Computing	K4
CO5	Examine the DBMS Architecture	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XX OPEN ELECTIVE		MACHINE LEARNING	48	2

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the Machine Learning Fundamentals	K1
CO2	Understanding the machine learning concepts	K2
CO3	Summarize the impact of machine learning applications	K3
CO4	Analyze machine learning support to business goals	K4
CO5	Evaluate the knowledge of machine skills	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XX OPEN ELECTIVE		ADVANCED EXCEL - PRACTICAL	48	2

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Use a range of lookup and reference functions.	K1
CO2	Modify Excel options.	K2
CO3	Customise the formatting of charts in Excel.	K3
CO4	Create and use labels and names in a workbook.	K4

CO5	Group cells and use outlines to manipulate the worksheet	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-IV	SKILL ENHANCEMENT : II	23SEU02	LIFE SKILLS	36	2

Course Outcome:

After completion of the course, the learners will be able to:

CO	Course Outcome	Knowledge Level
CO1	Identify the common communication problems, what good communication skills are and what they can do to improve their abilities	K1
CO2	Demonstrate communication through the digital media	K2
CO3	Prepare themselves to situations as an individual and as a team.	K3
CO4	Analyse various leadership models, strengths and abilities to create their leadership vision	K4
CO5	Appraise their potential as human beings and conduct themselves properly in the ways of the world.	K5

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate

CO-PO MAPPING (COURSE ARTICULATION MATRIX)

POs / Cos	PO 1	PO 2	PO 3	PO 4	PO 5	PO 6	PO 7
CO 1	3	9	3	1	3	3	1
CO 2	1	9	3	1	3	9	1
CO 3	1	3	3	3	9	3	3
CO 4	1	3	3	3	9	9	3
CO 5	1	3	3	1	3	1	9
Total Contribution of COs to POs	7	27	15	9	27	25	17
Weighted Percentage of COs Contribution to POs	0.42	1.72	0.99	0.66	2.85	2.67	2.03

Level of correlation: 0 – No correlation; 1 – Low correlation; 3 – Medium correlation; 9- High correlation between COs and POs.

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-V	PROFICIENCY ENHANCEMENT	23PEAMU01	ETHICAL HACKING (Self Study)	-	2

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Explain the importance of security and various types of attacks	K1
CO2	Understand the concepts of scanning and system hacking	K2
CO3	Explain about penetration testing and its methodology	K3
CO4	To study the ethical hacking techniques	K4
CO5	Identify the various programming languages used by security professional	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XXI	**23AMU20**	NATURAL LANGUAGE PROCESSING	72	5

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand the fundamental concepts and techniques of Natural Language Processing (NLP).	K1
CO2	Understanding of the models and algorithms in the field of NLP.	K2
CO3	Demonstrate the computational properties of natural languages and the commonly used algorithms for processing linguistic information.	K3
CO4	Understanding semantics and pragmatics of languages for processing	K4
CO5	Determine the Knowledge of secure software installation and testing	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT

PART-III	CORE : XXII PRACTICAL : VII	**23AMU21**	NATURAL LANGUAGE PROCESSING-PRACTICAL	72	4

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understandthefundamentalconceptsandtechniquesofnaturallanguageprocessing (NLP)	**K1**
CO2	Understanding of the models and algorithms in the field of NLP.	**K2**
CO3	Demonstrate the computational properties of natural languages and the commonly used algorithms for processing linguistic information.	**K3**
CO4	Understanding semantics and pragmatics of languages for processing	**K4**
CO5	Understanding the Sentiment and Semantic Analysis	**K5**

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE:XVIII	23AMU18	PROJECT WORK	60	5

Course Outcomes

On the successful completion of the course, students will be able to

CO NUMBER	CO Statement	Knowledge Level
CO1	Remember the thrust areas of project	K1
CO2	Demonstrate the problem pertaining to the domain	K2
CO3	Apply various algorithms in their relevant field	K3
CO4	Explore the real time applications	K4
CO5	Evaluate demographic variables and factors influencing software development	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XXIV ELECTIVE : II	23AMU22A	ARTIFICIAL NEURAL NETWORKS AND FUZZY SYSTEMS	60	5

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Explain the concepts of neural networks and ,fuzzy logic	K1
CO2	Understanding of the basic mathematical elements of the theory of fuzzy sets.	K2
CO3	Understanding the differences and similarities between fuzzy sets and classical sets theories	K3
CO4	Solve problems that are appropriately solved by neural networks and fuzzy logic	K4
CO5	Determine the usage of Neural networks, Fuzzy logics, and Genetic algorithms	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XXIV ELECTIVE : II	23AMU22B	WEB APPLICATION SECURITY	60	5

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Illustrate about the concept to HTML, DHTML, CSS and Java Script.	K1
CO2	Explain the history, characteristics, technologies, concepts, usage in web2.0 and web3.0	K2
CO3	Apply the core concepts of web applications to create web pages	K3
CO4	Apply the concepts of server-side programming	K4
CO5	Evaluate the requirements of web2.0 in education, philanthropy, social work.	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XXIV ELECTIVE : II	23AMU22C	FUNDAMENTALS OF ROBOTICS	60	5

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Describe the different physical forms of robot architectures.	K1
CO2	Explain about the actuators and characteristics of actuating system	K2
CO3	Demonstrate to mathematically describe a kinematic robot system.	K3
CO4	Analyze manipulation and navigation problems using knowledge of coordinate frames, kinematics, optimization, control, and uncertainty.	K4
CO5	To know the various applications of robots that used today and future	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XXV ELECTIVE : III	23AMU23A	EMBEDDED SYSTEMS	60	5

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Understand hardware and software design requirements of embedded systems.	K1
CO2	Explain about the architecture of microprocessor and operating systems in embedded systems	K2
CO3	Apply the concept of Semaphores with Semaphore Problems	K3
CO4	Analyze the embedded systems‘ specification and develop software programs	K4
CO5	Evaluate the requirements of programming Embedded Systems, related software Architectures and tool chain for Embedded Systems.	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XXV ELECTIVE : III	23AMU23B	PRINCIPLES OF SECURE CODING	60	5

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Explain about the secure software development life cycle	K1
CO2	Understand the secure coding techniques	K2
CO3	Demonstrate the threat modeling process and benefits	K3
CO4	Explain about the database and web specific issues	K4
CO5	Understanding about the Security code overview, secure software installation	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-III	CORE : XXV ELECTIVE : III	23AMU23C	OPEN SOURCE SOFTWARE	60	5

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Remember the basics of Open Source Software & Linux	K1
CO2	Demonstrate the concepts of Android	K2
CO3	Utilize the syntax of PHP Language	K3
CO4	Analyze an insight on MYSQL Database	K4
CO5	Assess General introduction on Open Source Grid Computing	K5

CATEGORY	COURSE TYPE	COURSE CODE	COURSE TITLE	CONTACT HOURS	CREDIT
PART-IV	Skill Enhancement: III	23SEAMU03	CAPSTONE PROJECT WORK (Based on AI & Machine Learning)	36	2

Course Outcomes

On the successful completion of the course, students will be able to

CO Number	CO Statement	Knowledge Level
CO1	Illustrate a real world problem and identify the list of project requirements	**K3**
CO2	Judge the features of the project including forms, databases and reports	**K5**
CO3	Based on the analysis and interpretation of the data collected, student will be able to arrive at logical conclusions and propose suitable recommendations on the project	**K6**
CO4	Designcodetomeettheinputrequirementsandtoachievetherequiredoutput	**K6**
CO5	Compose a project report incorporating the features of the project	**K6**