

# K.S.RANGASAMY COLLEGE OF ARTS AND SCIENCE

TIRUCHENGODE



DEPARTMENT OF COMPUTER SCIENCE-PG

## PO, PSO and CO MAPPING

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Controller of Examinations  
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## PROGRAMME OUTCOMES (PO)

After completion of the programme ,the graduates will be able to

PO1 :Apply the various kinds of programming approaches in real time applications.

PO2:Perceive the knowledge in Operating systems, Networking and Mobile application development environments.

PO3 :Apply the knowledge in Data science and in various complex environments.

PO4 :Develop the practical knowledge in accordance with the needs of corporate standards .

PO5 :Develop the technical skills in creating different types of real time applications.

## PROGRAMME SPECIFIC OUTCOMES (PSO)

After completion of the programme, the graduates will be able to


PSO 1: Apply the effective coding knowledge with successful result accomplishment.


PSO 2:Deploy and control the Operating system, networking, cloud environment and expert systems.

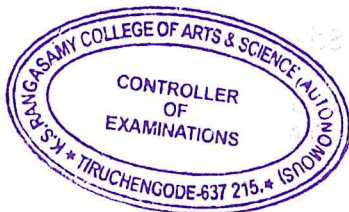
PSO 3:Manage ,analyze and visualize the Data in different perspectives.

PSO 4:Familiarise with Machine learning, Mobile and IOT application development.

PSO 5: Apply ethical, professional responsibilities, Project planning and development activities.

  
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## SEMESTER I - COURSE OUTCOMES (CO)

### COURSE OUTCOMES (CO)

After completion of the course, the students will be able

18PCSM101	CORE I: ADVANCED JAVA PROGRAMMING
CO1	Define the Detailed Architecture of J2EE and JDBC
CO2	Explain the concepts of Network protocols used in Java packages
CO3	Analyze the details of Servlet environment and Interface mechanism
CO4	Evaluate the JSP Elements and Scripting for Authentication process
CO5	Apply the Life Cycle of Java Bean and interface with SQL

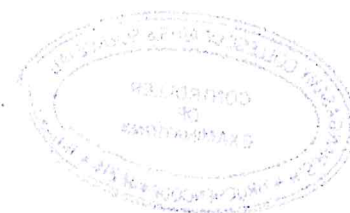
PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	H	M	H	H	H	M	M	H	M
CO2	H	H	M	H	H	H	H	M	M	M
CO3	H	M	L	H	H	H	H	H	M	M
CO4	H	L	M	H	H	H	H	H	M	M
CO5	M	M	M	H	H	H	H	H	M	H

H-High; M-Medium; L-Low

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**COURSE OUTCOMES (CO)**

18PCSM102	CORE II: DESIGN AND ANALYSIS OF ALGORITHMS
CO1	Explain the Algorithmic specification details.
CO2	Define the concepts of Job Sequencing and path finding Algorithms
CO3	Apply the Algorithms used for Dynamic Programming
CO4	Evaluate the Different Traversal methods and Search Techniques
CO5	Define the Basics of Np Hard problem and Genetic Algorithms

**MAPPING**

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	H	L	M	M	H	M	M	M	L
CO2	M	H	L	M	M	H	H	M	M	L
CO3	M	M	L	M	M	H	H	M	H	M
CO4	M	M	M	M	M	H	H	H	M	M
CO5	M	H	L	M	M	M	H	H	H	L

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## COURSE OUTCOMES (CO)

18PCSM103	CORE III: ADVANCED OPERATING SYSTEMS
CO1	Define the Fundamental concepts of an Operating System and Scheduling policies
CO2	Explain the Detailed Memory Management techniques and Virtual Memory concepts
CO3	Apply the Scheduling Task in Multiprocessor Architecture
CO4	Analyze the Deadlock and Resource Allocation concepts
CO5	Evaluate the Detailed Architecture of Distributed Operating Systems

## MAPPING

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	M	H	M	L	H	H	M	L
CO2	M	H	M	H	M	M	H	H	H	L
CO3	M	H	M	H	M	M	H	M	H	L
CO4	H	H	M	H	M	M	H	M	H	L
CO5	H	H	M	H	M	M	H	H	H	M

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**COURSE OUTCOMES (CO)**

18PCSM104	<b>CORE IV: NETWORK SECURITY AND CRYPTOGRAPHY</b>
CO1	Apply the basic techniques and advanced standards of Encryption
CO2	Familiar with the number Theory implementation in various cryptosystems
CO3	Define Hash function and Digital Signature conceptions
CO4	Analyze the User Authentication and web Security considerations
CO5	Expertise about Intrusion Detection, types of Virus, Worms and Firewalls

**MAPPING**

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	H	M	M	H	H	H	M	H	L
CO2	L	H	L	M	M	M	H	M	H	M
CO3	M	H	M	M	M	M	H	H	H	M
CO4	M	H	M	M	M	M	H	H	H	L
CO5	M	H	M	M	M	M	H	M	H	M

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**COURSE OUTCOMES (CO)**

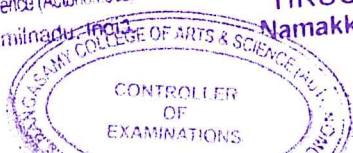
18PCSMP101	CORE PRACTICAL I : ADVANCED JAVA PROGRAMMING
CO 1	Establish Database connectivity and make modification with the help of Java interface
CO 2	Apply the concept of Message Passing through HTTPServlet
CO 3	Access the Data and storing the data through HTTPServlet
CO 4	Apply the Request Validation and Navigaion to other JSP
CO 5	Handle the Session Management and usage of Entity Bean API

**COURSE OUTCOMES (CO)**

18PCSMP102	CORE PRACTICAL II : PHP & MYSQL LAB
CO 1	Apply User defined functions and passing values to Multiple forms
CO 2	Practice Mechanism of Exception Handling and ODBC through PHP
CO 3	Apply Data Manipulation and server interaction
CO 4	Apply parser and DOM parser to process XML documents in PHP
CO 5	Establish the Interactive communication from a database and an XML file with AJAX

18PLS101	CAREER COMPETENCY SKILLS – I
CO1	Carry out mathematical calculations using shortcuts.
CO2	Calculate Problems on Ages with shortcuts.
CO3	Understand the core concepts of Pipes & Cisterns, Calendar & Clocks.
CO4	Obtain knowledge on shortcuts to Time & Work and Time & Distance.
CO5	Calculate Ratio & Proportion, Partnership with shortcuts.

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## SEMESTER II - COURSE OUTCOMES (CO)

After completion of the course, the students will be able to

### COURSE OUTCOMES (CO)

18PCSM201	CORE V: C# AND ASP .NET FRAMEWORK
CO1	Define the fundamentals of .NET framework
CO2	Familiar with the basics of C# working environment
CO3	Deal with Exception Handling and ADO.NET
CO4	Apply Lifecycle activities of ASP.NET
CO5	Handle the ASP.NET session Management

### MAPPING:

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	L	M	H	H	H	H	M	H	L
CO2	H	M	M	H	H	H	M	M	M	L
CO3	H	M	M	H	H	H	H	H	M	M
CO4	H	M	M	H	H	H	H	H	M	H
CO5	H	L	M	H	M	H	H	M	M	L

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## COURSE OUTCOMES (CO)

18PCSM202	CORE VI: DATA MINING AND WAREHOUSING
CO1	Define the Data warehouse architecture and implementation
CO2	Comprehend the Data Mining Functionalities and Preprocessing techniques
CO3	Analyze Frequent patterns, Classification and Prediction algorithms
CO4	Analyze Various types of Clustering and its impact
CO5	Expertize in Research prototypes and Web Mining

## MAPPING

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	L	H	M	M	M	H	H	M	L
CO2	M	L	H	M	M	M	H	H	M	L
CO3	M	L	H	M	H	M	H	H	M	M
CO4	M	L	M	M	H	M	H	H	M	L
CO5	M	M	H	H	H	M	H	H	H	M

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## COURSE OUTCOMES (CO)

18PCSEL201	<b>ELECTIVE I: OBJECT ORIENTED SOFTWARE ENGINEERING</b>
CO1	Apply the Development activities and Modeling concepts
CO2	Evaluate the Requirement Elicitation and Analysis
CO3	Define Detailed information of System Design and Goals
CO4	Familiar with Object Design and Specification interface
CO5	Evaluate the Testing Activities and Configuration managemet

## MAPPING

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	M	L	M	H	H	M	L
CO2	M	M	M	M	H	M	M	M	L	H
CO3	M	H	M	M	H	M	H	M	M	H
CO4	M	M	M	M	H	M	H	H	M	H
CO5	M	M	H	M	H	M	H	M	M	H

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## COURSE OUTCOMES (CO)

18PCSEL202	ELECTIVE I: SOFTWARE TESTING
CO1	Define world class testing organization
CO2	Analyze the testing process, testing tools and trainers.
CO3	Apply the testing verification process
CO4	Analyze the software development methodologies
CO5	Evaluate different types of testing process

## MAPPING

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	M	M	M	M	M	H	H
CO2	M	M	M	M	M	L	M	M	M	H
CO3	M	M	M	M	M	L	M	M	M	H
CO4	M	M	H	L	H	L	M	H	M	H
CO5	M	M	M	L	H	L	M	M	M	H

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## COURSE OUTCOMES (CO)

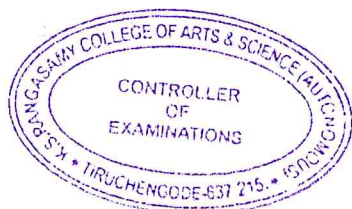
18PCSEL203	ELECTIVE I: SOFTWARE PROJECT MANAGEMENT
CO1	Familiar with the Project management Methodologies and Categories of Software Project
CO2	Apply the Various types of Software Development Models
CO3	Define the Activity planning and Risk Management
CO4	Analyze the Resource Allocation and Cost Control Management
CO5	Evaluate the Quality planning and Product

## MAPPING

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	L	M	H	H	L	M	M	M	H
CO2	L	L	M	H	H	M	H	M	M	H
CO3	L	L	M	M	H	M	H	H	M	H
CO4	L	L	M	M	H	L	M	M	M	H
CO5	M	M	M	M	H	L	M	M	H	H

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## COURSE OUTCOMES (CO)

18PCSEL204	ELECTIVE I: SOFTWARE ARCHITECTURE
CO1	Expertise in Software Architecture Business Cycle
CO2	Define the Importance of Software Architecture
CO3	Apply the Software quality Attributes
CO4	Evaluate the Tactics for Achieving quality
CO5	Familiar with the Complete documentation of Architecture Implementation

## MAPPING

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	L	M	M	M	M	H	H
CO2	L	M	M	L	M	M	H	M	M	H
CO3	M	M	M	L	M	M	M	L	M	H
CO4	M	M	M	M	M	M	M	L	M	H
CO5	M	M	M	M	M	M	H	M	M	H

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**COURSE OUTCOMES (CO)**

18PCSMP201	CORE PRACTICAL III: C# AND ASP .NET FRAMEWORK
CO 1	Practice the Console Environment and Exception Handling
CO 2	Identify the Data representation and Memory Management
CO 3	Practice ODBC Establishment and record manipulation
CO 4	Design MDI Form in ASP.NET Environment
CO 5	Practice on Session Management Techniques

**COURSE OUTCOMES (CO)**

18PCSMP202	CORE PRACTICAL IV : DATA MINING LAB
CO 1	Define Data preprocessing and Association Rules.
CO 2	Practice the Clustering and classification algorithms.
CO 3	Analyze different Mining Frequent Patterns.
CO 4	Work on Decision Tree and Search Method
CO 5	Practice about Data Analytics techniques

**COURSE OUTCOMES (CO)**

18PMACSI201	INTER DICLIPLINARY COURSE I: DISCRETE MATHEMATICS
CO 1	Learn the concepts of logic
CO 2	Discuss various normal forms
CO 3	Understand the concepts of inference theory
CO 4	Construct Karnaugh map and switch circuits
CO 5	Know the concepts of graphs and trees

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**COURSE OUTCOMES (CO)**

18PVE201	VALUE EDUCATION: HUMAN RIGHTS
CO1	Understand the core principles of human rights philosophy
CO2	Know the importance and functions of human rights commission
CO3	Apply their rights for democracy, human rights and gender equality
CO4	Know the rights from the Governance, economic and social development through various Acts
CO5	Understand the right to information Act, rights for women, children, Nomads, refugees and various sector of people in our country

**COURSE OUTCOMES (CO)**

18PLS201	CAREER COMPETENCY SKILLS – II
CO1	Understand the types of Interviews, Dress Code and Styles
CO2	Develop Resume content and structures.
CO3	Improve body language skills.
CO4	Know how to represent self through communication.
CO5	Attain the different level of Learning Skills.

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**SEMESTER III - COURSE OUTCOMES (CO)**  
After completion of the course, the students will be able to

**COURSE OUTCOMES (CO)**

18PCSM301	CORE VII: BIG DATA ANALYTICS
CO1	Familiar with the Big Data Technology intensification and Big Data stack Architecture.
CO2	Apply the concepts of virtualization in Map Reduce functions and Hadoop Technologies.
CO3	Comprehend the structure of Big Data Ware house and the different types Analytics approaches.
CO4	Apply the Big Data Implementation in different real time environments.
CO5	Evaluate the Big Data solutions for improving Business with analytical process.

**MAPPING**

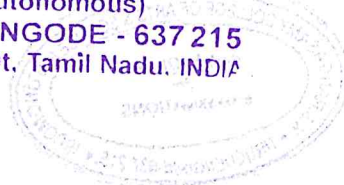
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CO2	M	M	H	M	M	M	M	H	L	L
CO3	H	M	H	H	M	L	M	H	H	M
CO4	M	M	H	H	H	M	M	H	H	H
CO5	M	L	H	H	H	L	M	H	H	H

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**COURSE OUTCOMES (CO)**

18PCSM302	CORE VIII: INTERNET OF THINGS
CO1	Explain the detailed architecture, stack of IoT and functional blocks of IoT Eco System.
CO2	Define the network, security and transport methods of IoT.
CO3	Analyse the streaming analytics and network analytics with Machine learning techniques.
CO4	Apply the Machine learning techniques over cloud environment.
CO5	Define the IoT reference models and smart architecture.

**MAPPING**

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	L	H	M	L	M	H	H	M
CO2	M	H	L	M	M	L	H	H	M	M
CO3	H	H	M	H	H	M	M	H	H	H
CO4	H	H	L	H	H	M	L	H	H	M
CO5	H	H	L	H	H	L	H	H	H	M

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## COURSE OUTCOMES (CO)

18PCSEL301	ELECTIVE II : DIGITAL IMAGE PROCESSING AND PATTERN RECOGNITION
CO1	Describe the basic concepts of signals and digital properties of image.
CO2	Interpret the various image enhancement techniques.
CO3	Analyze the image representation in more meaning full and easy by applying process of partitioning methods.
CO4	Realise dimensionality reduction that efficiently represents the image and apply the image data in computer vision.
CO5	Apply the machine learning in discovery of knowledge in image processing.

## MAPPING

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	M	L	L	L	L	H	H	M
CO2	L	M	M	M	M	L	H	H	M	L
CO3	M	M	H	M	M	M	H	H	H	H
CO4	M	M	H	M	H	L	L	H	H	M
CO5	M	M	H	H	H	L	H	H	H	M

H-High; M-Medium; L-Low

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## COURSE OUTCOMES (CO)

18PCSEL302	ELECTIVE III: SOFT COMPUTING
CO1	Define the overview of Intelligent systems that leads expert systems and scope of their applications in real world problems which has significant complexity.
CO2	Explain the algorithms that can be used to model complex patterns and prediction problems.
CO3	Conceive knowledge in CPU based automatic controls in feed forward networks which is used expert and AI domains.
CO4	Gain the experience in multi objective optimization of power systems is derived from fuzzy logic.
CO5	Conceive knowledge how genetic programming used in fuzzy systems.

## MAPPING

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	H	M	M	M	H	H	L	M	H
CO2	L	H	M	M	M	H	M	H	M	H
CO3	L	H	M	M	M	H	M	H	L	H
CO4	L	M	H	L	H	H	M	H	M	H
CO5	L	M	H	L	H	H	H	H	M	H

H-High; M-Medium; L-Low

*M-8*

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## COURSE OUTCOMES (CO)

18PCSEL303	ELECTIVE III: CLOUD COMPUTING
CO1	Define the different types of Cloud models and its Architecture.
CO2	Apply the suitable virtualization models in different service types.
CO3	Access the web services , Storage systems and Data Services.
CO4	Educate the working style of cloud services and security.
CO5	Evaluate SOA architecture and storage of cloud systems.

## MAPPING

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	M	L	L	M	L	M	M	H	M
CO2	M	M	L	L	M	M	M	H	H	M
CO3	M	M	M	H	H	L	H	H	H	M
CO4	M	M	M	H	H	L	H	H	H	H
CO5	M	H	M	M	H	M	H	H	H	M

H-High; M-Medium; L-Low

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## COURSE OUTCOMES (CO)

18PCSEL304	ELECTIVE III: PARALLEL PROCESSING
CO1	Evaluate the performance of PC with respect to the different generations.
CO2	Define the cache memory organization and performance characteristics.
CO3	Gain the knowledge in I/O operations and types of interfaces.
CO4	Familiar with various tasks of operating system and the architecture of processor.
CO5	Explain the parallel processing in different types of processors.

## MAPPING

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	L	L	M	L	L	L	H	M	M	L
CO2	L	M	M	L	M	M	H	H	H	M
CO3	L	M	M	M	M	L	H	H	H	M
CO4	M	H	M	M	M	L	H	H	H	H
CO5	M	H	M	M	H	M	H	H	H	M

H-High; M-Medium; L-Low

  
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**COURSE OUTCOMES (CO)**

<b>18PCSMP301</b>	<b>CORE PRACTICAL V: MOBILE APPLICATION DEVELOPMENT</b>
CO 1	Apply the Basic controls to design an effective form filling mobile application in XML based approach.
CO 2	Apply the different types of views to validate login form with appropriate coding instructions.
CO 3	Know Sqlite for creation of database and apply the validation.
CO 4	Apply different tanformations for image or button for simple animation.
CO 5	Create a basic JSON Parsing main activity application.

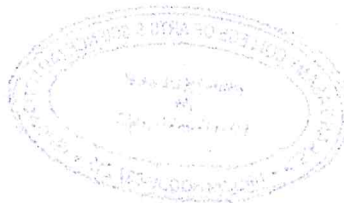
**COURSE OUTCOMES (CO)**

<b>18PCSMP302</b>	<b>CORE PRACTICAL VI: NETWORK AND IOT LAB</b>
CO 1	Configure networking components for connection establishment .
CO 2	Design simple and complex network architecture.
CO 3	Install device drivers and servsers for effective network communications.
CO 4	Connect the ARDUIO with other interfacing devices.
CO 5	Design new internet based applications by remote accessing mode.

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**COURSE OUTCOMES (CO)**

18PMACSI301	<b>IDC II: RESOURCE MANAGEMENT TECHNIQUES</b>
CO 1	Formulate and solve real life problems through LPP
CO 2	Find the optimum transportation schedule and assignment model
CO 3	Know the concepts of replacement policies
CO 4	Gain knowledge of keeping optimum stockhold
CO 5	Use the techniques for planning and scheduling of projects

**MAPPING**

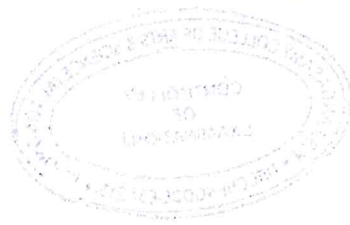
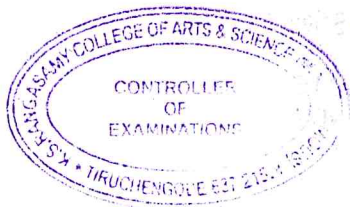
PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO 1	PSO 2	PSO 3	PSO 4	PSO 5
CO1	M	L	M	L	M	H	M	M	M	L
CO2	L	L	M	M	M	M	H	M	M	M
CO3	L	L	M	M	M	M	H	H	M	L
CO4	L	M	M	L	M	M	H	H	H	M
CO5	L	H	M	M	L	L	H	M	M	H

*M-V*

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**SEMESTER IV - COURSE OUTCOMES (CO)**  
After completion of the course, the students will be able to

**COURSE OUTCOMES (CO)**

<b>18PCSM401</b>	<b>CORE IX: PYTHON PROGRAMMING</b>
<b>CO1</b>	Realize the basic concepts of Python.
<b>CO2</b>	Know the OOPs and string handling techniques.
<b>CO3</b>	Analyze the file objects and automatic triggering of programs.
<b>CO4</b>	Analyze the function handling and module description mechanisms.
<b>CO5</b>	Recognize the multiple end-users interaction in scripting and socket programming.

**MAPPING**

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	H	L	M	H	H	H	L	M	M	L
CO2	H	L	M	H	H	H	H	M	M	L
CO3	H	H	M	H	H	M	H	M	H	M
CO4	H	M	M	H	H	M	M	M	H	H
CO5	H	H	M	H	M	L	M	H	H	H

H-High; M-Medium; L-Low

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## COURSE OUTCOMES (CO)

18PCSM402	CORE X: PROFESSIONAL ETHICS AND CYBER LAW
CO1	Define and explain the basic human values and standard life.
CO2	Interpret the need and importance of professional ethics.
CO3	Analyze the responsibility and techniques to strive for technical excellence.
CO4	Realise the authority and responsibility in Interpersonnel relationship.
CO5	Analyze the pros and cons of cyber crime and IT act.

## MAPPING

PO/PSO CO	PO1	PO2	PO3	PO4	PO5	PSO1	PSO2	PSO3	PSO4	PSO5
CO1	M	M	M	M	M	L	L	M	M	H
CO2	L	M	M	H	M	L	M	M	M	H
CO3	L	M	M	H	M	M	M	M	L	H
CO4	L	L	L	H	M	L	L	H	M	H
CO5	L	L	L	H	L	L	M	H	M	H

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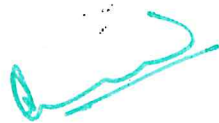
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**COURSE OUTCOMES (CO)**

18PCSM401	CORE PRACTICAL VII: PYTHON PROGRAMMING LAB
CO 1	Apply the elementary building blocks in Python program structure.
CO 2	Apply the OOPs concepts in Python programming.
CO 3	Realize and apply file handling operations in Python.
CO 4	Create customized web pages using forms in Python.
CO 5	Apply different types of database and web connectivity using Python.



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