Department of Computer Science and Engineering

B.E. 7th Sem

Course: Social Science and Engineering Economics **Course Code: (7KS01)**

At the end of Social Science and Engineering course the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Define the importance of social science and economics in professional life.	L1
CO 2	Discuss basic functioning of parliament, legislatives practices and procedures.	L2
CO 3	Examine the need of society and identify the system to fulfil it with deep analysis.	L4
CO 4	Explain the four factors of production required to sustain a business and contribution of primary functional areas within business for organization.	L2
CO 5	Demonstrate banking and marketing concepts.	L3
CO 6	Analyze the nature and scope of economics.	L4

Course: Computer Graphics **Course Code: (7KS02)**

At the end of Computer Graphics course, the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Describe the basic concepts of Computer Graphics.	L1
CO 2	Demonstrate various algorithms for basic graphics primitives.	L2
CO 3	Apply 2-D geometric transformations on graphical objects.	L3
CO 4	Use various Clipping algorithms on graphical objects.	L3
CO 5	Explore 3-D geometric transformations, curve representation techniques and Projections methods	L3
CO 6	Explain visible surface detection techniques and Animation.	L2

Course: Cloud Computing **Course Code: (7KS03)**

At the end of Cloud Computing course, the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Describe the fundamental concept, architecture and applications of Cloud Computing.	L1
CO 2	Explain the problems related to the cloud deployment model.	L2
CO 3	Examine the concept of virtualization.	L4
CO 4	Identify the role of network connectivity in the cloud.	L2
CO 5	Illustrate different cloud service providers.	L3
CO 6	Analyze the security issues in cloud service models.	L4

Course: Digital Forensics (PE-III) **Course Code: (7KS04)**

At the end of Digital Forensics course the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Describe Digital Forensics and its related preparation.	L1
CO 2	Outline Data Acquisition tools.	L2
CO 3	Use knowledge to improve crime investigations.	L4
CO 4	Examine Digital Forensic and its validation.	L2
CO 5	Assess the role of email and social media in investigations.	L3
CO 6	Discuss Cloud Forensics.	L4

Course: Image Processing (PE-IV) **Course Code: (7KS05)**

At the end of Image Processing course, the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Explain fundamental steps in Image Processing.	L2
CO 2	Identify different methods for image transform with its properties	L2
CO 3	Illustrate Image Enhancement in spatial domain.	L4
CO 4	Examine Image Enhancement in Frequency Domain.	L4
CO 5	Apply various methods for segmenting image and identifying image components	L3
CO 6	Examine morphological operations to improve the quality of image.	L4

Course: Project and Seminar **Course Code: (7KS09)**

At the end of Project and Seminar the student will be able to:

LO NO.	Laboratory Outcome	Level
CO 1	Demonstrate a sound technical knowledge of their selected seminar topic.	L3
CO 2	Explain problem identification, formulation and solution	L2
CO 3	Design engineering solutions to complex problems utilizing a systems approach.	L5
CO 4	Demonstrate the knowledge, skills and attitudes of a professional engineer	L3
CO5	Communicate with engineers and the community at large in written an oral form	L5

Lab: Computer Graphics **Lab Code: (7KS06)**

At the end of Computer Graphics lab course, the student will be able to:

LO NO.	Laboratory Outcome	Level
LO 1	Demonstrate various algorithms for basic graphics primitives.	L3
LO 2	Apply 2-D and 3-D geometric transformations, curve representation techniques	L3
LO 3	Explain various Clipping algorithms on graphical objects and animation.	L2

Lab: Emerging Technology Lab- III **Lab Code: (7KS07)**

At the end of Digital forensics (ETL-III) lab course the student will be able to:

LO NO.	Laboratory Outcome	Level
LO 1	Describe and Install security onion a free and open source security monitoring platform.	L2
LO 2	Use security onion tools to monitor network traffic for malicious activities.	L3
LO 3	Use LastPass and KeePass to generate and store strong passwords securely.	L3

Lab: Emerging Technology Lab- IV **Lab Code: (7KS08)**

At the end of Image Processing (ETL-IV) lab course the student will be able to:

LO NO.	Laboratory Outcome	Level
LO 1	Describe digital image representation, manipulation and illustrate the use of histograms.	L3
LO 2	Apply the various linear and non-linear filtering methods on 2D images.	L3
LO 3	Analyze various morphological operations on binary images and generate their transformed images.	L4

B.E. 8th Sem

Course: Object Oriented Analysis and Design **Course Code: (8KS01)**

At the end of Object-Oriented Analysis and Design course the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Describe Object oriented principles, for performing object-oriented analysis and design	L1
CO 2	Explain the basic concepts of UML, Software Development Processes and Design pattern.	L2
CO 3	Illustrate requirements for developing a software.	L3
CO 4	Create initial domain model & system sequence diagram for use case scenario.	L5
CO 5	Design static and dynamic objects for modelling.	L4
CO 6	Construct UML and Design Patterns for developing object-oriented software.	L5

Course: Professional Ethics and Management **Course Code: (8KS02)**

At the end of Professional Ethics and Management course the student will be able:

CO NO.	Course Outcome	Level
CO 1	Define ethical and non-ethical situations.	L1
CO 2	Classify ethics in the society & environment.	L2
CO 3	Examine the moral judgment & correlate the concepts in addressing the ethical dilemmas.	L4
CO 4	Analyze risk and safety measures in various engineering fields.	L4
CO 5	Discuss ethical issues related to engineering responsibilities and rights.	L2
CO 6	Apply cognitive skills for solving social problems.	L3

Course: System and Software Security (PE-V) **Course Code: (8KS03)**

At the end of System and Software Security course the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Relate malicious and non-malicious attacks.	L3
CO 2	Outline web common vulnerabilities, attack, mechanisms and methods.	L4
CO 3	Apply relevant methods for security modelling and analysis of Operating System.	L3
CO 4	Apply a secure network by monitoring and analyzing the nature of attacks.	L3
CO 5	Explain cryptography, intrusion detection and firewall system.	L2
CO 6	Illustrate different security solutions at various levels such as operating systems, databases and clouds.	L3

Course: Multimedia Computing (PE-VI) **Course Code: (8KS04)**

At the end of Multimedia Computing course, the student will be able to:

CO NO.	Course Outcome	Level
CO 1	Describe technical aspect of Multimedia Computing.	L2
CO 2	Identify various file formats for audio, video and text media	L2
CO 3	Examine lossless data compression techniques in real time.	L4
CO 4	Illustrate lossy data compression techniques in real time scenario.	L3
CO 5	Examine video compression technique.	L4
CO 6	Construct various networking protocols for multimedia applications.	L5

Course: Project and seminar **Course Code: (8KS07)**

At the end of Project and Seminar course the student will be able to:

LO NO.	Laboratory Outcome	Level
CO 1	Demonstrate their ability to design, conduct and report on a research project in a systematic and rigorous manner.	L3
CO 2	Use their knowledge of engineering principles and tools to develop innovative and effective solutions.	L3
CO 3	Express their design solutions clearly and concisely to both technical and non-technical audiences.	L2
CO 4	Apply the Engineering design process to solve complex engineering problems.	L3
CO 5	Develop their critical thinking skills and their ability to analyse and synthesize information from a variety of sources.	L5

Lab: Emerging Technology Lab-V **Lab Code: (8KS05)**

At the end of Emerging Technology lab course, the student will be able to:

LO NO.	Laboratory Outcome	Level
LO 1	Use Wireshark to capture and analyse network traffic.	L3
LO 2	Identify and exploit common web application vulnerabilities using Burp Suite	L2
LO 3	Use Nessus to scan networks and web applications for vulnerabilities.	L3

Lab: Emerging Technology Lab –VI **Lab Code: (8KS06)**

At the end of Emerging Technology lab-VI lab course the student will be able to:

LO NO.	Laboratory Outcome	Level
LO 1	Illustrate the requirements of fundamental of block chain	L3
LO 2	Classify the various functionalities and features in an Ethereum to generate smart contracts	L3
LO 3	Identify and apply the concepts of bitcoin	L1