

## **Syllabus for B.E VI Semester**

<b>Course Title: ENTREPRENEURSHIP, MANAGEMENT AND FINANCE</b>		
Subject Code : <b>22HU61</b>	Credits:3	CIE:50
Number of Lecture Hours/Week(L:T:P)	<b>3:0:0Hrs</b>	SEE: 50
Total Number of Lecture Hours	42	SEE Hours: 03
Prerequisites: Nil		
<b>Course Objectives:</b>		
<ul style="list-style-type: none"> <li>• The Meaning, Functions, Characteristics, Types, Role and Barriers of Entrepreneurship,</li> <li>• Government Support for Entrepreneurship</li> <li>• Management–Meaning, nature, characteristics, scope, functions, role etc and Engineers social responsibility and ethics</li> <li>• Preparation of Project and Source of Finance</li> <li>• Fundamentals of Financial Accounting</li> <li>• Personnel and Material Management, Inventory Control</li> </ul>		
<b>MODULES</b>	<b>Teaching Hours</b>	
<b>Module– I</b>  <b>Entrepreneur:</b> Meaning of Entrepreneur; Functions of an Entrepreneur; Characteristics of an entrepreneur, Types of Entrepreneur; Intrapreneurs – an emerging class ; Role of Entrepreneurs in economic development; Barriers to entrepreneurship, Government Support for Innovation and Entrepreneurship in India-Startup-India, Make-in- India, PMMY, AIM, STEP, BIRAC, Stand-up India, TREAD	<b>08 Hrs</b>	
<b>Module-II</b>  <b>Management:</b> Introduction – Meaning – nature and characteristics of Management, Scope and functional areas of management, Levels of Management, HenryFayol-14 Principles to Management, McKinsey’s 7-SModel,Managementbyobjective(MBO)– Meaning, process of MBO, benefits and drawbacks of MBO	<b>09 Hrs</b>	
<b>Module-III</b>  <b>Preparation of Project and Source of Finance:</b> <b>Preparation of Project:</b> Meaning of project; Project Identification; Project Selection; Project Report; Need and Significance of Report; Contents; <b>Source of Finance:</b> Long Term Sources (Equity, Preference, Debt Capital, Debentures, loan from Financial Institutions etc) and Short Term Source (Loan from commercial banks, Trade Credit, Customer Advances etc)	<b>08 Hrs</b>	
<b>Module- IV</b>  <b>Fundamentals of Financial Accounting:</b> Definition, Scope and Functions of Accounting, Accounting Concepts and Conventions: Golden rules of Accounting ,Final Accounts- Trading And Profit and Loss Account, Balance sheet	<b>09 Hrs</b>	

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<b>Module– V</b>	
<b>Personnel Management, Material Management and inventory Control: Personnel Management:</b> Functions of Personnel Management, Recruitment, Selection and Training, Wages, Salary and Incentives. <b>Material Management and Inventory Control:</b> Meaning, Scope and Objects of Material Management. Inventory Control-Meaning and Functions of Inventory control; Economic Order Quantity(EOQ) and various stock level(Re-Order level, Minimum level, Maximum level, Average level and Danger level)	<b>08 Hrs</b>

### **Question Paper Pattern**

The question paper will have ten questions.

There will be 2 questions from each module, covering all the topics from a module.

The students will have to answer 5 full questions, selecting one full question from each module.

### **TEXT BOOKS**

1. Financial Accounting-BSRAMAN-United Publishers Manglore, Maheswar SN & Maheswari S K-Vikas Publishing House. January 2018
2. Management & Entrepreneurship- K R Phaneesh- Sudha Publications January 2018 ,Prof Manjunatha & Amit kumar G-laxmi Publication,January2011.Veerbhadrappa Havina - Published by New Age International (P) Ltd., 2009.
3. PrinciplesofManagementFirstEdition(English,G.Murugesan),LaxmiPublications – New Delhi
4. Management by Objectives (Mbo) in Enterprises:21December2018 by Dr Wazir Ali Khan

### **REFERENCE BOOKS:**

1. IndustrialOrganization&EngineeringEconomics-TRBanga&SCSharma-Khanna Publishers, Dehli.
2. NPTEL: ENTREPRENEURSHIP: PROF.CBHAKTAVATSALA RAO Department of Management Studies IITMadras<https://nptel.ac.in/courses/110/106/110106141/>
3. <https://www.businessmanagementideas.com/notes/management-notes/notes-on-management-in-an-organization/4669>
4. <https://vskub.ac.in/wp-content/uploads/2020/04/Unit-5-ppmb.pdf>

### **Course outcomes:**

**On completion of the course, the student will have the ability to:**

<b>Course code</b>	<b>CO #</b>	<b>Course Outcome (CO)</b>
<b>22HU61</b>	<b>CO1</b>	Develop Entrepreneurship skills
	<b>CO2</b>	Apply the concepts of management and Management By Objective(MBO)
	<b>CO3</b>	Prepare project report & choose different Source of Finance.
	<b>CO4</b>	Apply Fundamentals of Financial Accounting and interpret the final accounts
	<b>CO5</b>	Apply personnel management skills, Material and inventory control techniques

## Curriculum for B.E. V - VI Semester (CSE) 2025 – 2026 (22 Series)

<b>COURSE TITLE: DIGITAL IMAGE PROCESSING</b>		
Subject Code: <b>22CS62</b>	Credits:04	CIE:50
Number of Lecture Hours/Week(L:T:P)	<b>4:0:0Hrs</b>	SEE:50
Total Number of Lecture Hours	52	SEEHours:03
<b>Prerequisites: Python</b>		
<b>Course Objectives:</b>		
<ol style="list-style-type: none"> <li>1. To understand the Image fundamental and mathematical representations necessary for image processing.</li> <li>2. Understand the image enhancement techniques.</li> <li>3. To understand image enhancement techniques and filtering techniques.</li> <li>4. To adopt restoration and color image processing.</li> <li>5. Analyze segmentation techniques and image description approaches.</li> </ol>		
<b>MODULES</b>		<b>Teaching Hours</b>
<b>Module-I</b>		<b>11Hrs</b>
<b>Digital Image Fundamentals:</b> Introduction to Digital Image Processing, Examples of fields that use DIP, Fundamental Steps in Digital Image Processing, Image Sensing and Acquisition: image acquisition using a single sensing element, image acquisition using sensor strips, image acquisition using sensor arrays, a simple image formation model, Image Sampling and Quantization: basic concepts in sampling and quantization, representing digital images, Some Basic Relationships between Pixels.		
<b>Module-II</b>		<b>11 Hrs</b>
<b>Image Enhancement in the Spatial Domain:</b> Basics of intensity transformations and spatial filtering, Some Basic Intensity Transformation Functions, Histogram Processing: Histogram equalization, and Matching, Fundamentals of Spatial Filtering, Smoothing Spatial Filters, Sharpening Spatial Filters.		
<b>Module-III</b>		<b>10 Hrs</b>
<b>Restoration:</b> A model of the image degradation/restoration process, Noise models, Restoration in the Presence of Noise Only using Spatial Filtering.		
<b>Module-IV</b>		<b>10Hrs</b>
<b>Image Segmentation:</b> Fundamentals, point, line, edge detection: background, detection of isolated points, line detection, edge models: the image gradient and its properties, Thresholding: the basics of intensity thresholding, Applications of segmentation techniques to sample images.		
<b>Module-V</b>		
<b>Color Image Processing and Image Representation:</b> Color Fundamentals, color Models, Pseudo color Image Processing, Basics of Full-color Image Processing, Boundary Descriptors, Regional Descriptors.		<b>10Hrs</b>
<b>Question paper pattern:</b> The question paper will have ten questions. There will be 2 questions from each module, covering all the topics from a module. The students will have to answer 5 full questions, selecting one full question from each module.		

## Curriculum for B.E. V - VI Semester (CSE) 2025 – 2026 (22 Series)

### **TEXT BOOKS:**

1. *Gonzalez* and. Richard E. Woods' **Digital Image Processing**, Fourth Edition, Global Edition 2018.

### **REFERENCE BOOKS:**

1. Digital Image Processing- S.Jayaraman, S. Esakkirajan, T. Veerakumar, TataMc Graw Hill 2014.
2. Digital Image Processing (with Matlab and Lab view),Vipul Singh, Elsiver. Filiplearning

### **Course outcomes:**

**On completion of the course, the student will have the ability to:**

<b>Course Code</b>	<b>CO#</b>	<b>Course Outcome(CO)</b>
22CS62	<b>CO1</b>	Describe the fundamentals concepts of digital image processing
	<b>CO2</b>	Demonstrate the techniques for Image enhancement in Spatial and frequency domain.
	<b>CO3</b>	Analyze Images restoration for noise removal.
	<b>CO4</b>	Implement segmentation techniques and apply on real life problems
	<b>CO5</b>	Adopt color image processing and apply representation approaches on given images.

## Curriculum for B.E. V - VI Semester (CSE) 2025 – 2026 (22 Series)

<b>Course Title: SYSTEM SIMULATION AND MODELLING</b>		
<b>Subject Code : 22CS632</b>	Credits :3	CIE: 50
Number of Lecture Hours/Week	3:0:0 Hrs	SEE: 50
Total Number of Lecture Hours	42	SEE Hours: 03
Prerequisites: Engineering Mathematics, Probability Theory		
Course objectives:		
<ul style="list-style-type: none"> <li>• To introduce simulation and modeling methods.</li> <li>• To highlight the use of simulation as a tool for various applications.</li> <li>• To solve real world problems using simulation</li> </ul>		
<b>Modules</b>	<b>Teaching Hours</b>	
<b>Module-I</b>  <b>Introduction And General Principles:</b> When simulation is the appropriate tool and when it is not appropriate; Advantages and disadvantages of simulation; Areas of application; system and System environment; Components of a system; Discrete and continuous systems; Model of system; Types of Models; Discrete-Event System Simulation; Steps in a Simulation study. Simulation examples; Simulation of queuing systems; Simulation of inventory systems; other examples of simulation. Concepts in Discrete-Event Simulation; The Event-Scheduling / Time –Advance Algorithm, World views, Manual simulation using Event scheduling.	<b>09 Hrs</b>	
<b>Module-II</b>  <b>Statistical and Queuing Models in Simulation:</b> Review of terminology and concepts; Useful statistical models; discrete distributions; Continuous distributions; Poisson process; Empirical distributions. Characteristics of queuing system; Queuing notation; Long-run measures of performance of queuing systems.	<b>08 Hrs</b>	
<b>Module-III</b>  <b>Random-Number, Random- Variate Generation:</b> Properties of random numbers; Generation of pseudo-random numbers; Techniques for generating random numbers; Tests for Random numbers.	<b>09 Hrs</b>	
<b>Module-IV</b>  <b>Input Modeling, Verification and Validation of Simulation Models, Optimization:</b> Data collection; Identifying the distribution with data; Parameter estimation; Goodness of fit tests; Fitting a non-stationary Poisson process; Selecting input models without data. Model building, verification and validation; Verification of simulation models; Calibration and validation of models. Optimization via simulation.	<b>08 Hrs</b>	
<b>Module-V</b>  <b>Output Analysis for A Single Model:</b> Types of simulation with respect to output analysis; stochastic nature of output data; Measures of performance and their estimation; Output analysis for terminating simulations.	08 Hrs	

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### **Question paper pattern:**

The question paper will have ten questions.

There will be 2 questions from each module, covering all the topics from a module.

The students will have to answer 5 full questions, selecting one full question from each module.

### **TEXT BOOKS:**

1. Jerry Banks, John S. Carson II, Barry L Nelson, David M. Nicol, Discrete-Event System Simulation –4<sup>th</sup> Edition, Pearson Education, 2007

### **REFERENCE BOOKS:**

1. Discrete-Event Simulation: A first course – Lawrence M. Leemis, Stephen K. Park, Pearson Education/Prentice-Hall India, 2006.
2. Simulation- Sheldon M. Ross, 4<sup>th</sup> edition, Elsevier, 2006.
3. Simulation Modeling and Analysis- Averill M. Law, 4<sup>th</sup> edition Tata McGraw-Hill, 2007.
4. System Simulation With Digital Computer – Nasingh Deo , Prentice- Hall of India
5. System Simulation- Geoffery Gordoan, Prentice- Hall of India

### **Course outcomes:**

On completion of the course, the student will have the ability to:

Course Code	CO #	Course Outcome (CO)
22CS632	CO1	Describe important elements of simulation and modeling, and develop simulation models for various Application.
	CO2	Apply statistical methods for problem solving and develop simulation of Queuing systems.
	CO3	Solve problems on random number and random variate generation and perform tests on random number.
	CO4	Explain Data generation strategies and the effectiveness of simulation results.
	CO5	Describe the output analysis of discrete-event simulation systems.

## Curriculum for B.E. V - VI Semester (CSE) 2025 – 2026 (22 Series)

<b>Course Title: MAJOR PROJECT PHASE -I</b>		
Subject Code: <b>22CS65</b>	Credit:2	CIE:50
Number of Practical Hours/Week	<b>2Hrs</b>	SEE:
		SEEHours:03
<b>Course Objectives:</b>		
<ul style="list-style-type: none"><li>• Identify real-world problems by performing the Literature survey</li><li>• Awareness of design and proposed methodologies and its analysis</li><li>• Design architectural Models and identity the functional &amp; nonfunctional requirements by all team members</li><li>• Prepare quality technical report and present in a well-organized manner</li></ul>		
<b>Course outcomes:</b>		
<b>On completion of the course, the student will have the ability to:</b>		
<b>Course Code</b>	<b>CO#</b>	<b>Course Outcome(CO)</b>
<b>22CS65</b>	<b>CO1</b>	Apply basic engineering knowledge and identify the problem either individually or as a group
	<b>CO2</b>	Evaluate the knowledge of contemporary issues through literature survey and formulate the problems.
	<b>CO3</b>	Apply Engineering skills to solve problems of Engineering applications.
	<b>CO4</b>	Design the problem using software methodology.
	<b>CO5</b>	Prepare well organized report.

# Curriculum for B.E. V - VI Semester (CSE) 2025 – 2026 (22 Series)

<b>Course Title: DIGITAL IMAGE PROCESSING LAB</b>		
SubjectCode: <b>22CSL66</b>	Credit:1	CIE:50
Number of Practical Hours/Week	<b>2Hrs</b>	SEE:50
		SEE Hours:03
<b>Prerequisites: C, Python</b>		
<b>Course Objectives:</b>		
<ol style="list-style-type: none"><li>1. Understand and explain Digital Image and its properties.</li><li>2. Apply Image processing arithmetic operations.</li><li>3. To Study the Image fundamental and mathematical transformations necessary for image processing.</li><li>4. Understand the image enhancement techniques, image restoration and segmentation techniques.</li></ol>		
<ol style="list-style-type: none"><li>1. Find and list the properties of a Digital Image and demonstrate arithmetic operations (plus and Minus) on two images of same properties.</li><li>2. Demonstrate bit wise operations like, AND, OR, XOR on two images</li><li>3. Demonstrate image preprocessing by reducing noise using image blurring technique.</li><li>4. Demonstrate image rotation</li><li>5. Demonstrate image translation</li><li>6. Demonstrate edge detection of image</li><li>7. Demonstrate Morphological Image Processing</li><li>8. Apply histogram equalization for enhancing the given images.</li><li>9. Image segmentation by different thresholding technique</li><li>10. Image segmentation by Otsu's technique</li><li>11. Convert a RGB image to YCrCb, HSV and LAB formats and display converted image</li><li>12. Implement smoothing of images by averaging, Gaussian and mean filter for image restoration</li></ol>		
<b>Note: Programs provided in this manual are just for basic guidance and students may develop or extend programs with their own logic. Further, can display output images as a strip in a window (using matplotlib) or in individual windows.</b>		
<b>Course outcomes:</b> <b>On completion of the course, the student will have the ability to:</b>		
Course Code	CO#	Course Outcome(CO)

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<b>22CSL66</b>	<b>CO1</b>	Design experiments to demonstrate different image formats and different operations on image.
	<b>CO2</b>	Demonstrate the techniques for Image enhancement in Spatial domain
	<b>CO3</b>	Analyze Images restoration and Segmentation operations.
	<b>CO4</b>	Design experiments to demonstrate Image Smoothening Filters
	<b>CO5</b>	Design experiments to demonstrate Image Segmentation

## Curriculum for B.E. V - VI Semester (CSE) 2025 – 2026 (22 Series)

<b>COURSE CODE: INDIAN KNOWLEDGE SYSTEMS</b>										
<b>Credits :L:T:P</b>	<b>:</b>	<b>1:0:0</b>		<b>CIE</b>	<b>:</b>	<b>50 Marks</b>				
<b>Total Hours</b>	<b>:</b>	<b>15 L</b>		<b>SEE</b>	<b>:</b>	<b>50 Marks</b>				
				<b>SEE Duration</b>	<b>:</b>	<b>02 Hours</b>				
<b>Course Learning Objectives:</b> The students will be able to										
<b>1</b>	To facilitate the students with the concepts of Indian traditional knowledge and to make them understand the Importance of roots of knowledge system.									
<b>2</b>	To make the students understand the traditional knowledge and analyze it and apply it To their day-to-day life.									
<b>Modules</b>										
<b>Module-I</b>										
<b>05Hrs</b>										
<b>Introduction to Indian Knowledge Systems(IKS):</b> Overview, Vedic Corpus, Philosophy, Character scope and importance, traditional knowledge vis-à-vis indigenous knowledge, Traditional knowledge vs. western knowledge.										
<b>Module-II</b>										
<b>05Hrs</b>										
<b>Traditional Knowledge in Humanities and Sciences:</b> Linguistics, Number and Measurements - Mathematics, Chemistry, Physics, Art, Astronomy, Astrology, Crafts and Trade in India and Engineering and Technology.										
<b>Module-III</b>										
<b>05Hrs</b>										
<b>Traditional Knowledge in Professional domain:</b> Town planning and architecture- Construction, Health, wellness and Psychology-Medicine, Agriculture, Governance and public administration, United Nations Sustainable development goals.										
<b>Course Outcomes: After completing the course, the students will be able to</b>										
<b>CO1:</b>	Provide an overview of the concept of the Indian Knowledge System and its importance.									
<b>CO2:</b>	Appreciate the need and importance of protecting traditional knowledge.									
<b>CO3:</b>	Recognize the relevance of Traditional knowledge in different domains.									
<b>CO4:</b>	Establish the significance of Indian Knowledge systems in the contemporary world.									

<b>Reference Books</b>	
<b>1</b>	<b>Introduction to Indian Knowledge System-concepts and applications</b> , B Mahadevan, VinayakRajatBhat,NagendraPavanaRN,2022,PHILearningPrivateLtd,ISBN-978-93-91818-21-0
	<b>Traditional Knowledge System in India</b> , Amit Jha, 2009, Atlantic Publishers and Distributors (P)Ltd.,ISBN-13:978-8126912230,
<b>2</b>	<b>Knowledge Traditions and Practices of India</b> , KapilKapoor, Avadesh Kumar Singh,Vol.1, 2005, D K Print World(P) Ltd.,ISBN 81-246-0334,
<b>Suggested Web Links:</b>	
<b>1.</b>	<a href="https://www.youtube.com/watch?v=LZP1StpYEPM">https://www.youtube.com/watch?v=LZP1StpYEPM</a>
<b>2.</b>	<a href="http://nptel.ac.in/courses/121106003/">http://nptel.ac.in/courses/121106003/</a>
<b>3.</b>	<a href="http://www.iitkgp.ac.in/department/KS;jsessionid=C5042785F727F6EB46CBF432D7683B63(Centre of Excellence for Indian Knowledge System, IIT Kharagpur)">http://www.iitkgp.ac.in/department/KS;jsessionid=C5042785F727F6EB46CBF432D7683B63(Centre of Excellence for Indian Knowledge System, IIT Kharagpur)</a>

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<b>4.</b>	<a href="https://www.wipo.int/pressroom/en/briefs/tk_ip.html">https://www.wipo.int/pressroom/en/briefs/tk_ip.html</a>	
<b>5.</b>	<a href="https://unctad.org/system/files/official-document/ditcted10_en.pdf">https://unctad.org/system/files/official-document/ditcted10_en.pdf</a>	
<b>6.</b>	<a href="http://nbaindia.org/uploaded/docs/traditionalknowledge_190707.pdf">http://nbaindia.org/uploaded/docs/traditionalknowledge_190707.pdf</a>	
<b>7.</b>	<a href="https://unfoundation.org/what-we-do/issues/sustainable-development-goals/?gclid=EAJalQobChMInp-Jtb_p8gIVTeN3Ch27LAmPEAAYASAAgIm1vD_BwE">https://unfoundation.org/what-we-do/issues/sustainable-development-goals/?gclid=EAJalQobChMInp-Jtb_p8gIVTeN3Ch27LAmPEAAYASAAgIm1vD_BwE</a>	
<b>ASSESSMENT AND EVALUATION PATTERN</b>		
<b>WEIGHTAGE</b>	<b>50%(CIE)</b>	<b>50%(SEE)</b>
<b>QUIZZES</b>		
Quiz-I	Each quiz is evaluated for 05 marks adding upto <b>10 Marks</b> .	*****
Quiz-II		
<b>THEORY COURSE-(Bloom's Taxonomy Levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating)</b>		
Test-I	Each test will be conducted for 25 Marks adding upto 50 marks. Final test marks will be reduced To <b>20 Marks</b>	*****
Test-II		
<b>EXPERIENTIAL LEARNING</b>	<b>20</b>	*****
Case Study-based Teaching-Learning	--	
Sector wise study & consolidation (viz., Engg. Semiconductor Design, Pharmaceutical, FMCG, Automobile, Aerospace and IT/ ITeS)	--	*****
Video based seminar(4-5minutes per student)	--	
<b>Maximum Marks for the Theory</b>	<b>---</b>	<b>50Marks</b>
<b>Practical</b>	<b>--</b>	<b>--</b>
<b>Total Marks for the Course</b>	<b>50</b>	<b>50</b>