

Syllabus for B.E VI Semester

Course Title: ENTREPRENEURSHIP, MANAGEMENT AND FINANCE		
Subject Code : 22HU61	Credits:3	CIE:50
Number of Lecture Hours/Week(L:T:P)	3:0:0Hrs	SEE: 50
Total Number of Lecture Hours	42	SEE Hours: 03
Prerequisites: Nil		
Course Objectives: <ul style="list-style-type: none"> • The Meaning, Functions, Characteristics, Types, Role and Barriers of Entrepreneurship, • Government Support for Entrepreneurship • Management–Meaning, nature, characteristics, scope, functions, role etc and Engineers social responsibility and ethics • Preparation of Project and Source of Finance • Fundamentals of Financial Accounting • Personnel and Material Management, Inventory Control 		
MODULES		Teaching Hours
Module– I		
Entrepreneur: 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		08 Hrs
Module-II		
Management: 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		09 Hrs
Module-III		
Preparation of Project and Source of Finance: Preparation of Project: Meaning of project; Project Identification; Project Selection; Project Report; Need and Significance of Report; Contents; Source of Finance: 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)		08 Hrs
Module– IV		
Fundamentals of Financial Accounting: Definition, Scope and Functions of Accounting, Accounting Concepts and Conventions: Golden rules of Accounting ,Final Accounts-Trading And Profit and Loss Account, Balance sheet		09 Hrs

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Module– V		08 Hrs
Personnel Management, Material Management and inventory Control: Personnel Management: Functions of Personnel Management, Recruitment, Selection and Training, Wages, Salary and Incentives. Material Management and Inventory Control: 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)		
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.Veerbhadrapa 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:		
Course code	CO #	Course Outcome (CO)
22HU61	CO1	Develop Entrepreneurship skills
	CO2	Apply the concepts of management and Management By Objective(MBO)
	CO3	Prepare project report & choose different Source of Finance.
	CO4	Apply Fundamentals of Financial Accounting and interpret the final accounts
	CO5	Apply personnel management skills, Material and inventory control techniques

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COURSE TITLE: DIGITAL IMAGE PROCESSING		
Subject Code: 22CS62	Credits:04	CIE:50
Number of Lecture Hours/Week(L:T:P)	4:0:0Hrs	SEE:50
Total Number of Lecture Hours	52	SEEHrs:03
Prerequisites: Python		
Course Objectives: <ol style="list-style-type: none"> 1. To understand the Image fundamental and mathematical representations necessary for image processing. 2. Understand the image enhancement techniques. 3. To understand image enhancement techniques and filtering techniques. 4. To adopt restoration and color image processing. 5. Analyze segmentation techniques and image description approaches. 		
MODULES		Teaching Hours
Module-I Digital Image Fundamentals: 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.		11Hrs
Module-II Image Enhancement in the Spatial Domain: 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.		11 Hrs
Module-III Restoration: A model of the image degradation/restoration process, Noise models, Restoration in the Presence of Noise Only using Spatial Filtering.		10 Hrs
Module-IV Image Segmentation: 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.		10Hrs
Module-V Color Image Processing and Image Representation: Color Fundamentals, color Models, Pseudo color Image Processing, Basics of Full-color Image Processing, Boundary Descriptors, Regional Descriptors.		10Hrs
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.		

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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, Elsevier. Filiplearning

Course outcomes:

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

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

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Course Title: SYSTEM SIMULATION AND MODELLING		
Subject Code : 22CS632	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"> • To introduce simulation and modeling methods. • To highlight the use of simulation as a tool for various applications. • To solve real world problems using simulation 		
Modules		Teaching Hours
Module-I Introduction And General Principles: 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.		09 Hrs
Module-II Statistical and Queuing Models in Simulation: 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.		08 Hrs
Module-III Random-Number, Random- Variate Generation: Properties of random numbers; Generation of pseudo-random numbers; Techniques for generating random numbers; Tests for Random numbers.		09 Hrs
Module-IV Input Modeling, Verification and Validation of Simulation Models, Optimization: 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.		08 Hrs
Module-V Output Analysis for A Single Model: 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 –4th 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, 4th edition, Elsevier, 2006.
3. Simulation Modeling and Analysis- Averill M. Law, 4th 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.

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

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

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22CSL66	C01	Design experiments to demonstrate different image formats and different operations on image.
	C02	Demonstrate the techniques for Image enhancement in Spatial domain
	C03	Analyze Images restoration and Segmentation operations.
	C04	Design experiments to demonstrate Image Smoothing Filters
	C05	Design experiments to demonstrate Image Segmentation

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

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

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4.	https://www.wipo.int/pressroom/en/briefs/tk_ip.html		
5.	https://unctad.org/system/files/official-document/ditcted10_en.pdf		
6.	http://nbaindia.org/uploaded/docs/traditionalknowledge_190707.pdf		
7.	https://unfoundation.org/what-we-do/issues/sustainable-development-goals/?gclid=EAIaIQobChMImp-Jtb_p8gIVTeN3Ch27LAmPEAAAYASAAEgIm1vD_BwE		
ASSESSMENT AND EVALUATION PATTERN			
WEIGHTAGE		50%(CIE)	50%(SEE)
QUIZZES			
Quiz-I	Each quiz is evaluated for 05 marks adding upto 10 Marks.	*****	
Quiz-II			
THEORY COURSE-(Bloom’s Taxonomy Levels: Remembering, Understanding, Applying, Analyzing, Evaluating, and Creating)			
Test–I	Each test will be conducted for 25 Marks adding upto 50 marks. Final test marks will be reduced To 20 Marks	*****	
Test–II			
EXPERIENTIALLEARNING	20	*****	
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)	--		
Maximum Marks for the Theory	---	50Marks	
Practical	--	--	
Total Marks for the Course	50	50	