



**List of Courses Focus on Professional Ethics, Gender, Human Values,
Environment & Sustainability and other value framework**

Department : *Industrial and Production Engineering*

Programme Name : *B.Tech.*

Academic Year : 2020-21

**Courses which focuses on Professional Ethics, Gender, Human Values,
Environment & Sustainability and other value framework:**

Sr. No.	Course Code	Name of the Course
01.	LW201TMC01	Indian Constitution
02.	EN202THS01	English Communication
03.	IP05THS41	Financial Management
04.	IP05THS42	Managerial Economics
05.	IP05THS43	Financial Accounting And Costing
06.	IP06TOE11	Enterprise Resource Planning
07.	IP06TOE12	Management Information System
08.	IP06TOE13	Six Sigma And DOE



Scheme and Syllabus

**SCHOOL OF STUDIES OF ENGINEERING & TECHNOLOGY
GURU GHASIDAS VISHWAVIDYALAYA, BILASPUR (C.G.)
(A CENTRAL UNIVERSITY)**

CBCS-NEW, EVALUATION SCHEME

PROPOSED (W.E.F. SESSION 2020-21)

B. TECH. FIRST YEAR (SEMESTER- I)

(Common for CH, CE, IPE, ME)

S.No.	COURSE No.	SUBJECT	PERIODS			EVALUATION SCHEME			CREDITS
			L	T	P	IA	ESE	SUB-TOTAL	
THEORY									
1.	MA201TBS01	MATHEMATICS-I	3	1	-	30	70	100	4
2.	CY201TBS02	CHEMISTRY	3	1	-	30	70	100	4
3.	CE201TES01	ENGINEERING MECHANICS	3	1	-	30	70	100	4
4.	CS201TES02	COMPUTER PROGRAMMING	3	0	-	30	70	100	3
5.	CM201TES03	BASIC CIVIL & MECHANICAL ENGINEERING	3	0	-	30	70	100	3
6.	LW201TMC01	INDIAN CONSTITUTION	2	0	-	-	-	-	-
TOTAL			17	3	-	150	350	500	18
PRACTICALS									
1.	CY201PBS01	CHEMISTRY LAB	-	-	2	30	20	50	1
2.	CE201PES01	ENGINEERING MECHANICS LAB	-	-	2	30	20	50	1
3.	CS201PES02	COMPUTER PROGRAMMING LAB	-	-	2	30	20	50	1
TOTAL			-	-	6	90	60	150	3
GRAND TOTAL			17	3	6	240	410	650	21

Total Credits:21

Total Contact Hours:26

Total Marks:650

L:LECTURE, T:TUTORIAL, P:PRACTICAL, IA : INTERNAL ASSESSMENT, ESE:END SEMESTER EXAMINATION

*INTERNAL ASSESSMENT- Two Class Test of 15 Marks each will be conducted.



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**CBCS-NEW, EVALUATION SCHEME
PROPOSED (W.E.F. SESSION 2020-21)
B. TECH. FIRST YEAR (SEMESTER- II)**

(Common for CH, CE, IPE, ME)

S. No.	COURSE No.	SUBJECT	PERIODS			EVALUATION SCHEME			CREDITS
			L	T	P	IA	ESE	SUB-TOTAL	
THEORY									
1.	MA202TBS03	MATHEMATICS-II	3	1	-	30	70	100	4
2.	PH202TBS04	PHYSICS	3	1	-	30	70	100	4
3.	EC202TES04	BASIC ELECTRICAL & ELECTRONICS ENGINEERING	3	1	-	30	70	100	4
4.	IT202TES05	INTRODUCTION TO INFORMATION TECHNOLOGIES	2	0	-	30	70	100	2
5.	EN202THS01	ENGLISH COMMUNICATION	3	0	-	30	70	100	3
TOTAL			14	3	-	150	350	500	17
PRACTICALS									
1.	PH202PBS02	PHYSICS LAB	-	-	2	30	20	50	1
2.	ME202PES03	ENGINEERING GRAPHICS	1	-	3	30	20	50	3
3.	ME202PES04	WORKSHOP TECHNOLOGY & PRACTICES	1	-	2	30	20	50	2
4.	EC202PES05	BEE LAB	-	-	2	30	20	50	1
TOTAL			2	-	9	120	80	200	7
GRAND TOTAL			16	3	9	270	430	700	24

Total Credits:24

Total Contact Hours:28

Total Marks:700

L:LECTURE, T:TUTORIAL, P:PRACTICAL, IA : INTERNAL ASSESSMENT, ESE:END SEMESTER EXAMINATION

*INTERNAL ASSESSMENT- Two Class Test of 15 Marks each will be conducted.



B. TECH. FIRST YEAR SYLLABUS (W.E.F SESSION 2020-21)

SYLLABUS	(SEMESTER-I)	Periods/Week			Internal Assessment (IA)			ESE	Grand Total	Credits
		L	T	P	CT-I	CT-II	TOTAL			
<i>Subject Code:</i>	LW201TMC01									
<i>Subject:</i>	INDIAN CONSTITUTION	2	0	-	-	-	-			

Course Learning Objectives:

- To the importance of preamble of the constitution of India.
- To understand the fundamental rights and duty as a citizen of India.
- To understand the functioning of union and state government and their inter-relationship.

Course Content:

UNIT 1: Introduction: Constitution-meaning of the term, Sources and constitutional theory, Features, Citizenship, Preamble.

UNIT 2: Fundamental Rights and Duties: Fundamental Rights, Fundamental Duties, Directive Principles of State Policy

UNIT 3: Union Government: Structure of Indian Union: Federalism, Centre-State relationship President: Role, Power and position, Prime Minister and council of ministers, Cabinet and Central Secretariat, Lok Sabha, Rajya Sabha

UNIT 4: State Government: Governor: Role and position, Chief Minister and council of ministers, State Secretariat

UNIT 5: Relationship between Centre and States: Distribution of Legislative Powers, Administrative Relations, Coordination between States

Textbooks/References:

1. Constitution of India, V.N. Shukla
2. The Constitutional Law of India, J.N. Pandey
3. Indian Constitutional Law. M.P. Jain

Course Outcome: At the end of the course students will be able to:

- Describe the salient features of the Indian Constitution
- List the Fundamental Rights and Fundamental Duties of Indian citizens
- Describe the Directive Principles of State Policy and their significance



B. TECH. FIRST YEAR SYLLABUS (W.E.F SESSION 2020-21)

SYLLAUS	(SEMESTER-II)	Periods/Week			Internal Assessment (IA)			ESE	Grand Total	Credits
		L	T	P	CT-I	CT-II	TOTAL			
<i>Subject Code:</i>	EN202THS01							70	100	03
<i>Subject:</i>	ENGLISH COMMUNICATION	3	0	-	15	15	30			

Course Learning Objectives

- To build up word power, to brush up the knowledge of English grammar, to develop good writing and speaking skills in the students

Course Content:

UNIT 1: Vocabulary Building

The concept of Word Formation, Root words from foreign languages and their use in English, Acquaintance with prefixes and suffixes from foreign languages in English to form derivatives. Synonyms, antonyms, and standard abbreviations.

UNIT 2: Basic Writing Skills

Sentence Structures, Use of phrases and clauses in sentences, Importance of proper punctuation, Creating coherence, Organizing principles of paragraphs in documents, Techniques for writing precisely

UNIT 3: Identifying Common Errors in Writing

Subject-verb agreement, Noun-pronoun agreement, Misplaced modifiers, Articles, Prepositions, Redundancies, Clichés

Unit 4: Nature and Style of sensible Writing

Describing, Defining, Classifying, Providing examples or evidence, Writing introduction and conclusion.

UNIT 5: Writing Practices

Comprehension, Précis Writing, Essay Writing.

Oral Communication (This unit involves interactive practice sessions in Language Lab)

Listening Comprehension

Pronunciation, Intonation, Stress and Rhythm

Common Everyday Situations: Conversations and Dialogues

Communication at Workplace

Interviews

Formal Presentations

Textbooks/References:

1. Practical English Usage. Michael Swan. OUP. 1995.
2. Remedial English Grammar. F.T. Wood. Macmillan.2007 (iii)On Writing Well. William Zinsser. Harper Resource Book. 2001
3. Study Writing. Liz Hamp-Lyons and Ben Heasley. Cambridge University Press. 2006.
4. Communication Skills. Sanjay Kumar and PushpLata. Oxford University Press. 2011.
5. Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford University Press

Course Outcome:

At the end of the course students will be able learn a lot of new words. They also learnt the particularities and peculiarities of English grammar. As a result, they could speak and write English with the least possible error



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SCHOOL OF STUDIES IN ENGINEERING & TECHNOLOGY

Department of Industrial & Production Engineering

CBCS-New, Study & Evaluation Scheme W.E.F. Session: 2020-21

B.TECH. THIRD YEAR, V SEMESTER

SN	Course No.	SUBJECT	PERIODS			EVALUATION SCHEME			CREDITS
			L	T	P	INTERNAL ASSESSMENT	ESE	SUB-TOTAL	
1.	IP05TPC08	Design of Machine Elements	3	1	-	30	70	100	4
2.	IP05TPC09	Metal Cutting	3	0	-	30	70	100	3
3.	IP05TPC10	Statistical Quality Control	3	0	-	30	70	100	3
4.	IP05TPE01	Professional Electives-01	3	0	-	30	70	100	3
5.	IP05TPE02	Professional Electives-02	3	0	-	30	70	100	3
6.	IP05THS04	Electives from Humanity Science-03	3	0	-	30	70	100	3
Total			18	1	-	180	420	600	19
PRACTICALS									
1.	IP05PPC05	Metal Cutting Lab	-	-	2	30	20	50	1
2.	IP05PSC01	Seminar	-	-	2	50	-	50	1
Total			-	-	4	80	20	100	2

Total Credits: **21**

Total Contact Hour: **23**

Total Marks: **700**

INTERNAL ASSESSMENT: - Two class tests of 15 marks each will be conducted.

L-LECTURE, T-TUTORIAL, P-PRACTICAL, ESE –END SEMESTER EXAMINATION

IP05TPE01 Professional Electives-01
IP05TPE11 Industrial Engineering
IP05TPE12 Work Study and Ergonomics
IP05TPE13 Employee Relation
IP05TPE02 Professional Electives-02
IP05TPE21 MEMS & Nanotechnology
IP05TPE22 I. C. Engine
IP05TPE23 Mechatronics
IP05THS04 Electives from Humanity Science-03
IP05THS41 Financial Management
IP05THS42 Managerial Economics
IP05THS43 Financial Accounting and Costing



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Course Name & Semester	Course No.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
			L	T	P	INTERNAL ASSESSMENT		ESE	SUB-TOTAL	
						CT-I	CT-II			
B. Tech. V Sem.	IP05THS41	Financial Management	3	-	-	15	15	70	100	3

COURSE OBJECTIVES:

1. The objective of this course is to inform the students about the basic concepts of financial management and contemporary theory and policy in order to master the concepts, theories and technique of financial management, which represents the condition of profitable business operations and survival respectively in the development of business subjects and the economy as a whole.
2. Students should acquire the basic knowledge by means of combining theoretical cognitions and practical attitudes to enable them the understanding of financial problems in business practice after completed the vocational studies.

COURSE OUTCOMES:

After completion of the course, student will be able to

CO1: Start and manage new business.

CO2: Evaluate and monitor short term and long-term investments.

CO3: Evaluate and monitor current asset.

COURSE CONTENT:

Module – I

Introduction: Scope and objective, organisation of finance function.

Time value risk and return and valuation of money: Valuation of long-term securities, various model of pricing.

Module –II

Statement of changes in financial position: Sources and uses of working capital, cash flow statement, balance sheet, profit loss account and its process.

Financial ratio analysis: Meaning, types, importance and limitations, calculation of various ratios.

Module –III

Capital budgeting: Principals, techniques, various methods of capital budgeting, concept and measurement of cost and capital, and various approaches for measurement of cost of capital and computation.

Analysis of risk and uncertainty: Various approaches for risk evaluation.



Module –IV

Theory of working capital management: Concept and definition of gross, working capital and net working capital, trade-off between profitability and risk.

Module –V

Operating, financial and combined leverage: Introduction, definition and concept and various approaches.

TEXT & REFERENCE BOOKS:

1. Financial Management–Khan and Jain, TMGH.
2. Financial Management –Kuchhal, Vikas Publication.
3. Financial Management–Paresh Shah, Willey India Pvt. Ltd.



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Course Name & Semester	Course No.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
			L	T	P	INTERNAL ASSESSMENT		ESE	SUB-TOTAL	
						CT-I	CT-II			
B.Tech. V Sem.	IP05THS42	Managerial Economics	3	-	-	15	15	70	100	3

COURSE OBJECTIVES:

1. To prepare engineering student to analyse cost/revenue data and carry out economic analyses in the decision making.
2. Justify the process or reject alternatives/projects on an economic basis.
3. To prepare engineering students to function in the business and management side of professional engineering practice.

COURSE OUTCOME:

After completion of the course, student will be able to

CO1: Be able to make intelligent comparisons of project alternatives during the planning and implementation phases.

CO2: Be able to perform and evaluate present worth, future worth and annual worth analyses on one of more economic alternatives.

CO3: Be able to perform and evaluate payback period and capitalized cost on one or more economic alternatives.

CO4: Be able to carry out and evaluate benefit/cost, life cycle and breakeven analyses on one or more economic alternatives

COURSE CONTENT:

Module- I

Introduction to managerial economics: Different area of managerial economics, micro and macroeconomics, nature and scope of managerial economics, demand analysis, law of demand and its exceptions, elasticity of demand: definition, types, measurement and significance of elasticity of demand, supply analysis, law of supply, elasticity of supply: definition, types, measurement and significance of elasticity of supply.

Module- II

Law of return: Revenue analysis, theory of production and cost analysis: production function, Cobb-Douglas production function, ACMS production function, investment function.

Cost analysis: Cost concept, opportunity cost, fixed vs. variable cost, explicit costs vs. implicit costs, out of pocket costs vs. imputed costs, break-even analysis (BEA), determination of break-even point (simple problem), managerial significance and limitation of BEA.



Module-III

Introduction to market & pricing policies: Element of market, types of market, concept of market, classification of market based on the nature of competition, types of competition, features of perfect competition, feature of imperfect competition, monopoly and monopolistic competition, price-output determination in case of perfect competition and monopoly.

Objectives and policies of pricing: Introduction, full cost or cost-plus pricing, differential pricing, going rate pricing, marginal cost pricing, trade association pricing, loss leadership pricing, administered pricing

Module- IV

Forms of business organization: Introduction, definition, essential element of good organization, principles of organization, formal and informal organisation, organisation structure, concept of ownership organization, types of ownership, partnership, joint stock company, types of joint stock company, co-operative organization, public sector organisation.

Capital and capital budgeting: Capital and its classifications, need of working capital and its assessment, factors affecting working capital, fundamental of accounting, types of capital, method and sources of raising finance, nature and scope of capital budgeting, features of capital budgeting proposals, method of capital budgeting: payback method, accounting rate of return (ARR) and net present value method (simple problems).

Module- V

Fundamental of financial accounting: Nature of accounting, important accounting terminology, accounts and types of accounts, rules of debit and credit, system of book keeping, book of accounts, journal, ledger, trial balance, final account, trading account, profit and loss accounts and balance sheet.

Financial analysis through ratios: Classification of financial ratios, liquidity ratios, leverage ratios, activity ratios, profitability ratios, current ratio, acid test ratio, debt equity ratio, assets coverage ratio, debt service coverage ratio, inventory turnover ratio, debtor velocity ratio, creditor velocity ratio, gross profit ratio, net profit ratio, return on equity ratio.

TEXT & REFERENCE BOOKS:

1. Managerial Economics –YogeshMaheshwari, PHI.
2. Managerial Economics – Joel Dean, PHI.
3. Managerial Economics–Craig H. Petersen, W. Cris Lewis, Sudhir K Jain.
4. Financial Accounting For Management –Ambrish Gupta, Pearson Education.
5. Managerial Economics – H. Craig Peterson & W. Cris Lewis, PHI.
6. Managerial Economics – Suma Damodaran, Oxford University Press.
7. Managerial Economics and Financial Analysis –Aryasri, TMH.



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Course Name & Semester	Course No.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
			L	T	P	INTERNAL ASSESSMENT		ESE	SUB-TOTAL	
						CT-I	CT-II			
B.Tech. V Sem.	IP05THS43	Financial Accounting and Costing	3	-	-	15	15	70	100	3

COURSE OBJECTIVES:

1. To ascertain the cost per unit of the different products manufactured by a business concern.
2. To provide a correct analysis of cost both by process or operations and by different elements of cost.
3. To disclose sources of wastage whether of material, time or expense or in the use of machinery.
4. Equipment and tools and to prepare such reports which may be necessary to control such wastage.
5. To provide requisite data and serve as a guide for fixing prices of products manufactured or services rendered.

COURSE OUTCOMES:

After completion of the course, student will be able to

- CO1: Appreciate the need for negotiable instruments and procedure of accounting for bills honoured and dishonoured.
- CO2: Differentiate trade bills from accommodation bills.
- CO3: Understand the concept of consignment and learn the accounting treatment of the various aspects of consignment.
- CO4: Distinguish joint venture and partnership and to learn the methods of maintaining records under joint venture.
- CO5: Distinguish between single entry and double entry.
- CO6: Know the ascertainment of profit under single entry system.
- CO7: Understand the meaning and features of non-profit organisations.

COURSE CONTENT:

Module- I

Financial accounting: Introduction to book keeping, double-entry accounting, journal & ledger posting, financial statements & analysis, trial balance, preparation of trading and profit & loss account and balance sheet.

Module-II



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Ratio analysis: Balance sheet ratios, current ratio, fixed asset ratio, liquidity ratio, capital gearing ratio, profit-loss account ratios, gross margin ratio, net margin ratio, combined ratios, return on investment ratio, net profit to total assets ratio, creditors turnover ratio.

Module-III

Costing: Objectives of costing, elements of costing, methods of costing, preparation of cost sheet, job costing, marginal costing, absorption costing, process costing and standard costing-material, labour, overhead cost variance, activity based costing and target costing, cost-profit-volume analysis and problems on cost-volume-profit analysis.

Module-IV

Working capital management: Introduction, concepts of working capital, operating and cash conversion cycle, permanent and variable working capital, balanced working capital position, determinants of working capital, estimating working capital needs, policies for financing current assets, issues in working capital management.

Module-V

Capital budgeting: Nature and scope of capital budgeting, features of capital budgeting, methods of capital budgeting, DCF, NON-DCF techniques, accounting rate of return, net present value, payback period, discounted payback period, profitability index.

TEXT & REFERENCE BOOKS:

1. Accounting for Management–T. Vijaya Kumar, 1/e, Tata McGraw-Hill.
2. Financial Management–I. M. Pandey 9/e, Vikas Publishing House.
3. Cost Accounting–M.Y. Khan and P. K. Jain, 2/e, TMH.
4. Management Accounting–M.Y. Khan and P. K. Jain, Text, Problems and Cases, 6/e TMH.
5. Basic Financial Management–M.Y. Khan, P. K. Jain, 3/e, TMH.



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**Department of Industrial & Production Engineering
CBCS-New, Study & Evaluation Scheme W.E.F. Session: 2020-21
B. TECH THIRD YEAR, VI SEMESTER**

SN	Course No.	SUBJECT	PERIODS			EVALUATION SCHEME			CREDITS
			L	T	P	INTERNAL ASSESSMENT	ESE	SUB-TOTAL	
1.	IP06TPC11	Operation Research	3	1	0	30	70	100	4
2.	IP06TPC12	Metrology & Measurement	3	0	0	30	70	100	3
3.	IP06TPC13	Welding Engineering	3	0	0	30	70	100	3
4.	IP06TPE03	Professional Elective-03	3	0	0	30	70	100	3
5.	IP06TPE04	Professional Elective-04	3	0	0	30	70	100	3
6.	IP06TOE01	Open Elective-01	3	0	0	30	70	100	3
Total			18	1	0	180	420	600	19
PRACTICALS									
1.	IP06PPC06	Metrology & Measurement Lab	0	0	2	30	20	50	1
2.	IP06PPC07	Welding Engineering Lab	0	0	2	30	20	50	1
Total			-	-	4	60	40	100	2

Total Credits: **21**

Total Contact Hour: **23**

Total Marks: **700**

INTERNAL ASSESSMENT: - Two class tests of 15 marks each will be conducted.

L-LECTURE, T-TUTORIAL, P-PRACTICAL, ESE –END SEMESTER EXAMINATION

IP06TPE03 Professional Electives-03
IP06TPE31 Material Management
IP06TPE32 Plant Layout & Material Handling
IP06TPE33 Maintenance & Reliability Engineering
IP06TPE04 Professional Electives-04
IP06TPE41 Automobile Engineering
IP06TPE42 Power Plant Engineering
IP06TPE43 Heat & Mass Transfer
IP06TOE01 Open Elective-01
IP06TOE11 Enterprise Resource Planning
IP06TOE12 Management Information System
IP06TOE13 Six Sigma and DOE



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Course Name & Semester	Course No.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
			L	T	P	INTERNAL ASSESSMENT		ESE	SUB-TOTAL	
						CT-I	CT-II			
B.Tech VI Sem.	IP06TOE11	Enterprise Resource Planning	3	-	-	15	15	70	100	3

COURSE OBJECTIVES:

1. To provide and gain insight into process views of organizations and tools and techniques used to model both as-is and to-be models.
2. Apply the process modeling techniques in one or more modelling environments.
3. Summarize basic concepts, tools and techniques of enterprise resource planning (ERP).
4. Describe the key implementation issues of ERP.
5. Reorganize the current and future trends in ERP.

COURSE OUTCOMES:

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

- CO1: Capable to apply key technical terminology in enterprise information systems as they apply in different ERP products and development methods.
- CO2: Understand key differences between the major ERP applications (such as SAP R/3).
- CO3: Analyze a current architecture and perform an effective gap analysis before an ERP implementation
- CO4: Be able to map enterprise architectural resources to a contemporary Enterprise Architecture mapping tool

COURSE CONTENT:

Module – I

Introduction to Enterprise resource planning: Evolution of ERP, MRP, MRP-II, e-ERP, generic business model with reference to ERP, structure of ERP: Two tier architecture client, server, three tier architecture, repository, RDBMS, operating systems, generic model of ERP system - design tree node structure, design of, role/activity diagrams, benchmarking, types of benchmarking, process of benchmarking.

Module – II

Introduction to Business Process Re-engineering: Procedure of BPR, principle of BPR, process improvement, process redesign.

Module – III

Analysis of risk and uncertainty: Various approaches for risk evaluation.introduction: supply chain management and ERP, understanding the supply chain with case examples, supply chain performance



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with measures, achieving strategic fit and scope, supply chain drivers, supply chain obstacles, ERP vs SCM, benefits of supply chain improvement, introduction of logistics types of logistics, types of logistics, benefits of logistics.

Module – IV

Integrated SAP model: Integrated data, master data, transactional data, integrated processes, evolution electronic data interchange (EDI), use of EDI, and benefits of EDI, selection of ERP, introduction opportunities and problems in ERP selection, approach to ERP.

Module – V

Origins of SAP: SAP's markets, SAP architecture and integration, SAP business structure, customization of SAP, SAP R/3 material management, sales and distribution, production, plant maintenance, quality management, methodology for ERP implementation, implementation phases, implementation of life cycle implementation failure.

TEXT & REFERENCE BOOKS:

1. Enterprise Resource Planning: Theory and practice - V. Rahul, PHI Publication.
2. Enterprise Resource Planning: Concepts and practice - V.K. Garg, TMH Publication.
3. Enterprise Resource Planning - Alexis Leon, McGraw-Hill Publication.



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Course Name & Semester	Course No.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
			L	T	P	INTERNAL ASSESSMENT		ESE	SUB-TOTAL	
						CT-I	CT-II			
B.Tech VI Sem.	IP06TOE12	Management Information System	3	-	-	15	15	70	100	3

COURSE OBJECTIVES:

1. Describe the major technological, organizational, behavioral and ethical issues facing today's information systems professional.
2. Retain currency in the face of rapid technological change by reading and understanding technical literature.
3. Critically and comparatively evaluate technical descriptions of computer hardware and software products.

COURSE OUTCOME:

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

CO1: Summarize the foundation for design and analysis of supply chains and synthesize advanced and specialized concepts, principles and models for operational and strategic improvement.

CO2: Analytically examine the supply chain of organizations and measure performance improvement.

CO3: Summarize basic concepts, tools and techniques of enterprise resource planning.

COURSE CONTENT:

Module - I

Organization & types, decision making, cost & value of information, introduction to information in business, types of information system, need, importance, scope and characteristics of information system, component of information system, developing information system. MIS concept evaluation and characteristics structure of MIS, MIS v/s data processing, MIS and DSS.

Module - II

Solving business problems with information system, concept of balanced MIS, effectiveness & efficiency criteria, tool and techniques of MIS- dataflow diagram, flow chart etc.

Data base technology: Introduction, data base and enterprise management, data independence data base approaches, data base architecture, data models, DBMS SQL and working, 4GL, data administration.



Module - III

Business application of information technology, electronic commerce internet, intranet, extranet & enterprise solutions, information system for business operations, information system for managerial decision support, information system for strategic advantage.

Module - IV

Managing information technology, enterprise & global management, security & ethical challenges, planning & implementing change reports, various types of MIS reports, GUI & other presentation tools.

Module - V

Advanced concepts in information system, enterprise resource planning: introduction, various Modules like human resources, finance, accounting, production & logistics. Supply chain management, CRM, procurement, management system object oriented modeling case studies.

TEXT & REFERENCE BOOKS:

1. Introduction to Information System - O.Brian, TMH.
2. Management Information System - Rahul De, Wiley.
3. Management Information System - Louden and lauden, PHI.
4. Information System Analysis & Design - Bansal, TMH.
5. Management Information System - Jawadegar, TMH.
6. Information System for Modern Management - Murdick, PHI.
7. Management Information System - Sadagopan, PHI.



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Course Name & Semester	Course No.	SUBJECT	PERIODS			EVALUATION SCHEME				CREDITS
			L	T	P	INTERNAL ASSESSMENT		ESE	SUB-TOTAL	
						CT-I	CT-II			
B.Tech VI Sem.	IP06TOE13	Six Sigma and DOE	3	-	-	15	15	70	100	3

COURSE OBJECTIVES:

1. Improve the customer's satisfactions and quality of product and services.
2. Reduce the process cycle time and cost saving and developing staff scale.
3. Understanding the issue and principle of design of an experiment.

COURSE OUTCOMES:

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

CO1: Explain the practical implications of Design of experiments.

CO2: Adopt ANOVA techniques to identify sufficient factors.

CO3: Apply Taguchi techniques to conduct experiments in research work.

CO4: Execute various phases of Six Sigma for real time projects.

COURSE CONTENT:

Module - I

Quality perception: Quality in manufacturing, quality in service sector, differences between conventional and six sigma concept of quality.

Probability distribution: Normal, binomial, poisson distribution.

Basics of Six Sigma: Concept of six sigma, defects, DPMO, DPU, attacks on X'S, customer focus, six sigma for manufacturing, six sigma for service, Z score, understanding six sigma organization, leadership council, project sponsors and champions, master black belt, black belt, green belts.

Module - II

Methodology of Six Sigma: DMAIC, DFSS, models of implementation of six sigma, selection of six sigma projects, introduction to software for six sigma, understanding minitab, and graphical analysis of minitab plots.

Module - III

Six Sigma tools: Project charter, process mapping, measurement system analysis, hypothesis testing, quality function deployment, failure mode effect analysis.

Module - IV

Design of experiments: Applications of experimental design, basic principles, design guidelines, statistical design and problems, experimental design, statistical analysis of data, loss function and its calculations.



Module - V

Comparative experiments: Statistical concepts, sampling and sampling distributions, inferences about the differences in means, randomized design and inference about differences in means paired comparison design, inferences about the variances of normal distributions, experiment with single factor: the analysis of variance (ANOVA), analysis of fixed effects models, model adequacy checking, practical interpretation of results, sample computer output, determining the sample size, discovering the dispersion effect, the regression approach to the ANOVA, and non parametric method in the ANOVA.

TEXT & REFERENCE BOOKS:

1. Lean Six Sigma Using Sigma XL and Minitab - Issa Bass, Barbara Lawton, 1/e, Tata Mc Graw-Hill, 2010.
2. Design of Experiments - Phillip Ross PHI.
3. What is Six Sigma, 1/e - P. Pande & L. Holpp, Tata McGraw-Hill.
4. The Six Sigma Way, 1/e - P. Pande, Tata McGraw-Hill.
5. What is Design for Six Sigma 1/e - R. Cavanagh, R. Neuman, P. Pande, Tata McGraw- Hill.
6. Six Sigma - K K Bhote Mc-Graw Hill.
7. Design and Analysis of Experiments - D.C. Montgomery, 8th Edition, John Wiley.