

TILAK MAHARASHTRA VIDYAPEETH,PUNE																
TEACHING AND EXAMINATION SCHEME FOR DIPLOMA COURSE																
COURSE NAME : COMPUTER ENGINEERING																
COURSE CODE : CO																
DURATION OF COURSE : 6 SEMESTERS																
YEAR/SEMESTER : SIXTH SEMESTER													DURATION : 18 WEEKS			
FULL TIME																
SR. NO.	SUBJECT TITLE	SUBJECT CODE	TEACHING SCHEME		EXAMINATION SCHEME											
			TH	PR	PAPER HRS	TH		INT	TOTAL		PR		OR		TW	
						Max	Min		Max	Min	Max	Min	Max	Min	Max	Min
1	Principles of Management	CO6001	04	--	3	80	32	20	100	40	--	--	--	--	--	--
2	Software Testing	CO6002	04	02	3	80	32	20	100	40	--	--	25*	10	25*	10
3	Advance Java Programming	CO6003	04	04	3	80	32	20	100	40	50**	20	--	--	50*	10
4	Elective II (Any one)															
	Object Oriented Modeling and Design	CO6004	02	04	3	80	32	20	100	40	--	--	25**	10	25*	10
	Introduction to Embedded System	CO6005	02	04	3	80	32	20	100	40			25**	10	25*	10
5	Entrepreneurship Development	CO6006	01	--	--										25*	10
6	Industrial Projects	CO6007	--	06	--								50**	20	50*	20
7	Professional Practices-V	CO6008	--	02	--										50*	20
TOTAL			15	18	--	320	--	80	400	--	50	--	125	--	250	--
STUDENT CONTACT HOURS PER WEEK : 33 HRS : Theory and Practical Periods are of 60 minutes each																
* - INTERNAL ASSESSMENT , ** - EXTERNAL ASSESSMENT , @ - COMMON TO ALL CONVENTIONAL DIPLOMA																
TOTAL MARKS – 825																
ABBREVIATIONS : TH – THEORY , INT- INTERNAL, PR – PRACTICALS , OR –ORAL, TW – TERMWORK																
All Practical, Orals and Term Work assessments are to be done as per the prevailing norms for implementation and assessment																

COURSE NAME : ALL BRANCHES FOR ENGINEERING
COURSE CODE : CO
SEMESTER : SIXTH
SUBJECT TITLE : PRINCIPLES OF MANAGEMENT
SUBJECT CODE : CO6001

Teaching and Examination Scheme:

Teaching Scheme		Examination Scheme						
TH	PR	PAPER HRS	TH	INT	PR	OR	TW	TOTAL
04	--	03	80	20	--	--	--	100

Pre-requisites:

The students should know the following concepts:-

1. Students should know industrial working & different requirements of production
2. Different activities in Organisation

Objectives:

The students will able to :

1. Familiarize environment in the world of work.
2. Explain the importance of management process in Business.
3. Identify various components of management .
4. Describe Role & Responsibilities of a Technician in an Organizational structure.
5. Apply various rules and regulations connected with Business & Social Responsibilities of the Technician

Unit	Name of the Topics	Hours	Marks
01	Overview Of Business Types of Business Service, Manufacturing, Trade Industrial sectors Introduction to Engineering industry ,Process industry , Textile, industry , Chemical industry , Agro industry Globalization Introduction Advantages & disadvantages w.r.t. India Intellectual Property Rights (I.P.R.)	02	02
02	Management Process What is Management? Evolution, Various definitions, Concept of management, Levels of management, Administration & management, Scientific management by F.W.Taylor Principles of Management (14 principles of Henry Fayol) Functions of Management Planning Organizing Directing Controlling	07	10
03	Organizational Management Organization :- Definition Steps in organization Types of organization Line, Line & staff , Functional Project Departmentation Centralized & Decentralized, Authority & Responsibility, Span of Control Forms of ownership Proprietorship, Partnership, Joint stock Co-operative Society Govt. Sector	07	12
04	Human Resource Management Personnel Management Introduction, Definition, Functions Staffing Introduction to HR Planning Recruitment Procedure Personnel- Training & Development Types of training , Induction , Skill Enhancement Leadership & Motivation Maslow's Theory of Motivation Safety Management Causes of accident, Safety precautions Introduction to - Factory Act , ESI Act , Workmen Compensation Act , Industrial Dispute Act	08	16

05	Financial Management	08	16
	Financial Management- Objectives & Functions		
	Capital Generation & Management		
	Types of Capitals		
	Sources of raising Capital		
	Budgets and accounts		
	Types of Budgets, Production Budget (including Variance Report), Labour Budget		
	Introduction to Profit & Loss Account (only concepts) ; Balance Sheet		
	Introduction to -		
	Excise Tax, Service Tax, Income Tax, VAT, Custom Duty		
06	Materials Management	08	14
	Inventory Management (No Numericals)		
	• Meaning & Objectives		
	ABC Analysis		
	Economic Order Quantity		
	• Introduction & Graphical Representation		
	Purchase Procedure		
	• Objects of Purchasing		
	Functions of Purchase Dept.		
	Steps in Purchasing		
	Modern Techniques of Material Management : Introductory treatment to JIT / SAP / ERP		
07	Project Management (No Numericals)	08	10
	Project Management		
	Introduction & Meaning, Introduction to CPM & PERT Technique, Concept of Break		
	Even Analysis		
	Quality Management		
	Definition of Quality , concept of Quality , Quality		
	Circle, Quality Assurance		
	Introduction to TQM, Kaizen, 5 'S',		
	& 6 Sigma		
	TOTAL	48	80

Recommended Books:

Sr. No	Author	Name of Book	Publisher
01	Dr. O.P. Khanna	Industrial Engg & Management	Dhanpal Rai & sons New Delhi
02	Dr. S.C. Saksena W.H. Newman	Business Administration & Management	Sahitya Bhavan Agra
03	E.Kirby Warren Andrew R. McGill	The process of Management	Prentice- Hall
04	Rustom S. Davar	Industrial Management	Khanna Publication
05	Banga & Sharma	Industrial Organisation & Management	Khanna Publication
06	Jhamb & Bokil	Industrial Management	Everest Publication , Pune

COURSE NAME : COMPUTER ENGINEERING
COURSE CODE : CO
SEMESTER : SIXTH
SUBJECT TITLE : SOFTWARE TESTING
SUBJECT CODE : CO6002

Teaching and Examination Scheme:

Teaching Scheme		Examination Scheme						
TH	PR	PAPER HRS	TH	INT	PR	OR	TW	TOTAL
04	02	03	80	20	--	25*	25*	150

Pre-requisites:

The students should know the following concepts:-

1. Basic Knowledge of Computer Concepts
2. Basic Knowledge of Computer Hardware & Software
3. Knowledge of Security system .
4. Knowledge of Programming Languages .

Objectives:

The students will be able to:

1. Understand the impact of software bugs and importance of software testing
2. Develop the skills necessary to find bugs in any types of software.
3. Learn how to effectively plan your tests, communicate the bugs you find, and measure your success as a software tester.
4. *Use your* new testing skills to test not just the software , but also the product specification the raw code, and even the user's manual
5. Learn how to test software for compatibility, usability and cultural issues.
6. Discover how to improve your testing efficiency by automating your tests.

Unit	Name of the Topic	Hours	Marks
01	Software Testing Background What is Bug? Software Bug: A Formal definition. Why do Bug occurs? , cost of bugs, What Exactly does a software tester do? Software Development Process : What Effort Goes into a software product?Software Project Staff , Software Development Lifecycle Models :- Big-Bang Model , Code and fix Model, Waterfall model, Spiral Model The Realities of Software Testing: Testing Axiom	06	10
02	Testing Fundamentals Black-Box and white-box Testing, Static and Dynamic Testing High Level Review of the Specification, Low Level Specification Test Techniques:- Specification Terminology Checklist. Test-to-pass and Test-to-fail, Equivalences Partitioning , Data Testing :- Boundary Condition, Sub-Boundary Conditions, default, empty, blank, Null, Zero and None, Invalid, Wrong, Incorrect and garbage data.	14	15
03	Static White Box Testing: Examining the design and code, Formal Review: - Peer Review, Walkthroughs, Inspections. Coding Standards and Guidelines:- Generic Code Review Checklist:- Data Reference Errors, Data Declaration Errors, Computation Errors, Comparison Error, Control Flow Errors, Subroutine Parameter Errors, Input/Output Errors Unit and Integration Testing	14	10

04	Configuration Testing Isolating Configuration: Bugs, Sizing up the job. Decide which Hardware features, modes and options are possible, Configuration to a Manageable Set, Design the test Cases to Run on each configuration. Execute the tests on each configuration. Obtaining the hardware, Identify hardware standards, configuration testing other hardware. Compatibility Testing Overview, Platform and Application Versions, Backward and forward compatibility, the impact of testing multiple versions.	06	10
05	Usability Testing User Interface Testing: What makes a Good UI? , Follows standards or Guidelines, Intuitive, Consistent, Flexible, Comfortable, Correct, Useful. Testing for the Disabled: Accessibility Testing: - It's the Law, accessibility features in software. Web site Testing Web Page Fundamentals, Black-Box Testing: - Text, Hyperlinks, graphics, forms, object and other simple miscellaneous Functionality. Gray Box Testing, White Box Testing, Configuration and compatibility testing, Usability Testing, Introducing Automation.	08	10
06	Automation Testing and test tools The benefits of automation and tools, Test tools: - Viewers and Monitors, Drivers, Stubs, Stress and load tools, Interference injectors and noise generators, analysis tools. Software Test Automation: - Macro Recording and playback, programmed macros, Fully Programmable Automated Testing Tools.	04	10

07	Planning your test effort : the goal of the test planning , test planning topics :- high level expectations , people , places , and things , definitions , Inter group Responsibilities , what will and won't be tested , test phases , test strategy , resource requirements , tester assignments , test schedule , test cases , bug reporting , Metrics and statistics , Risk and Issues. Getting your bugs fixed, isolating & reproducing bugs , Not all bugs are created equal , a bug's life cycle , bug tracking system :- The test incident Report , Manual Bug Reporting and Tracking	06	10
08	Software Quality Assurance : Quality is free, testing and quality assurance in the workplace , software testing , Quality Assurance, other names for software testing groups, Test management and organizational structures, Capability Maturity Model (CMM), ISO 9000	06	05
Total		62	80

List of Practical: (Any 10)

Sr. No.	Practical Name
1	Introduction To Software Testing Concepts
2	Case Study:- Study any system specification and report bugs
3	Write Test Cases For any Application (e.g. Railway Reservation Form)
4	Display "Hello World"
5	Write a program to demonstrate use of 1) For ...Loop 2) Switch ... Case 3) Do...While 4) If....else
6	Automate Notepad Application.
7	Automate any installation procedure (e.g. WinZip)
	Automate Microsoft Word Application
8	1) Open Microsoft Word 2) Type text (automatically) 3) Generate random file name. 4) Save file and close Microsoft Word.
9	Create GUI Objects.
10	Create any GUI Application e.g. Calculator
11	Assignment for Web Testing (use any Web testing tools e.g. Selenium)
12	Assignment for any Bug Tracking Tool (e.g. Bugzilla, Bugit)
13	Assignment for any test management tool (e.g. Test Director)

All above Practical may be performed on **Windows or Linux** Platform, using the tools mentioned below:

Sr. No	Testing Tools	Type of Tool
1	AutoIT	Free Ware
2	Ruby	Free Ware
3	Water	Free Ware
4	Sahi	Free Ware
5	Bugzilla	Licensed Software
6	Test Track	Licensed Software

Books:

Sr. No.	Author	Title	Publication
01	Ron Patton	Software Testing	SAMS Techmedia
02	Srinivasan Desikan Gopalaswamy Ramesh	Software Testing : Principals and Practical	Pearson Education

COURSE NAME : COMPUTER ENGINEERING
COURSE CODE : CO
SEMESTER : SIXTH
SUBJECT TITLE : ADVANCED JAVA PROGRAMMING
SUBJECT CODE : CO6003

Teaching and Examination Scheme:

Teaching Scheme		Examination Scheme						
TH	PR	PAPER HRS	TH	INT	PR	OR	TW	TOTAL
04	04	03	80	20	50**	--	50*	200

Perquisites:-

The students are know the following concepts:

1. Knowledge Of Object Oriented Concept
2. Knowledge of basic java Concepts such as Inheritance, Packages, Error Handling, Interface

Objectives:

After studying this subject, the student will be able to:

1. Create business applications
2. Create network based applications
3. Implement Server side programming.
4. Develop dynamic software components.
5. Develop database application
6. Design and develop powerful GUI based components.
7. Create Animation using Applet, Thread and AWT controls

Unit	Name of the Topic	Hours	Marks
01	Introduction the Advanced Web Technology: (AWT) Working with Windows and AWT AWT classes Windows Fundamentals Working with frame windows Creating a frame window in applet Creating windowed program Display information within with in a window Working with graphics Working with color Setting the paint mode Working with Fonts Managing text output using Font Metrics Exploring text & graphics Using AWT Controls, Layout Managers and Menus Control Fundamentals Labels Using Buttons Applying Check Boxes Checkbox Group Choice Controls Using Lists Managing scroll Bars Using a Text Field Using a Text Area Understanding Layout Managers Menu Bars and Menu Dialog Boxes File Dialog Handling events by Extending AWT Components Exploring the Controls, Menus, and Layout Managers	16	20
02	Networking: Basics Socket overview, client/server, reserved sockets, proxy servers, internet addressing. Java & the Net The networking classes & interfaces Inet address Factory methods, instance method TCP/IP Client Sockets What is URL Format URL connection TCI/IP Server Sockets Data grams Data gram packets, Data gram server & client	08	12
03	Java Data Base Client/ Server Java as a Database front end Database client/server methodology	08	20

	Two-Tier Database Design		
	Three-Tier Database Design		
	The JDBC API		
	The API Components, Limitations Using JDBC(Applications vs. Applets), Security Considerations, A JDBC Database Example JDBC Drivers ,JDBC-ODBC Bridge Current JDBC Drivers		
04	The Tour of Swing		
	J applet, Icons and Labels ,Text Fields, Buttons	08	08
	Combo Boxes, Tabbed Panes, Scroll Panes. Trees, Tables, Exploring the Swings.		
05	Servlets	08	20
	Background, The Life Cycle Of a Servlet,The Java Servlet Development Kit, The Simple Servlet, The Servlet API		
	The Javax Servlet Package, Reading Servlet Parameters Reading Initialization Parameters The Javax. Servlet. http package, Handling HTTP Requests and responses Using Cookies, Session Tracking, Security Issues Exploring Servlet		
	Total	48	80

List of Practical:

Sr. No	Contents
01	Write a program to design a form using components textbox, text field, checkbox, buttons, list and handle various events related to each component.
02	Write a program to design a calculator using Java components and handle various events related to each component and apply proper layout to it.
03	Write a program to demonstrate use of Grid Layout.
04	Write a program to demonstrate use of Flow Layout.
05	Write a program to demonstrate use of Card Layout.
06	Write a program to demonstrate use of Border Layout.
07	Write a program to display any string using available Font and with every mouse click change the size and / style of the string. Make use of Font and Font metrics class and their methods.
08	Write a program to create a menu bar with various menu items and sub menu items. Also create a checkable menu item. On clicking a menu Item display a suitable Dialog box.
09	Write a program to increase the font size of a font displayed when the value of thumb in scrollbar increases at the same time it decreases the size of the font when the value of font decreases.
10	Write a program to retrieve hostname using methods in Inet Address class.
11	Write a program that demonstrates TCP/IP based communication between client and server.
12	Write a program that demonstrates UDP based communication between client and server.
13	Write a program to demonstrate use of URL and URL Connection class for communication.
14	Write an Application program /Applet to make connectivity with database using JDBC API
15	Write an Application program/Applet to send queries through JDBC bridge & handle result.
16	Write a program to design a form using basic swing components.
17	Write a program to demonstrate the use of scroll panes in Swing.
18	Write Java Program to map Directory tree.
19	Write a Java program to demonstrate the use of Tables.
20	Write a servlet for demonstrating the generic servlet class.
21	Write a servlet for demonstrating the generic servlet class.
22	Write a servlet to demonstrate the Http Servlet class using do Get ().
23	Write a servlet to demonstrate the Http Servlet class using do Post ().
24	Write a servlet to demonstrate the cookie.

Recommended Books:

Sr. No.	Author	Title	Publisher
01	Patrick Naughton- Herbert Schildt	The Complete Reference Java 2 (Third Edition)	Tata McGraw hill
02	Michael Morrison	The Complete IDIOT's Guide To JAVA 2	Prentice Hall of India
03	Jawroski	Java2 Unleashed	Techmedia
04	Java2 Programming	Keyur Shah	Tata McGraw hill

COURSE NAME : COMPUTER ENGINEERING
COURSE CODE : CO
SEMESTER : SIXTH
SUBJECT TITLE : OBJECT ORIENTED MODELLING AND DESIGN (ELECTIVE-II)
SUBJECT CODE : CO6004

Teaching and Examination Scheme:

Teaching Scheme		Examination Scheme						
TH	PR	PAPER HRS	TH	INT	PR	OR	TW	TOTAL
02	04	03	80	20	--	25**	25*	150

Pre-requisites:

The students are known the following concepts:

1. Knowledge of software development Life Cycle
2. Knowledge of differentiating between procedural and object oriented Language

Objectives:

The student will be able to:

- 1) Interpret / give the meaning of object-oriented concepts.
- 2) Understand different Modeling Methodology.
- 3) Prepare an object model for a given problem statement.
- 4) Prepare dynamic for a given problem statement.
- 5) Describe and Design the concepts of class diagram, object diagram, interaction diagram, sequence diagram collaboration, use case diagram, state diagram, activity.
- 6) Usage of anyone design tool.

Chapter	Name of the Topic	Hours	Marks
01	Importance of Modelling Brief overview of Object Modelling Technology (OMT) by Ram Baugh, Booch Methodology, Use Case driven approach (OOSE) by Jacobson, Overview of CRC card method by Cunningham.	03	10
02	Object Modelling Objects and Classes (Object Diagrams, Attributes, Operations and Methods), Links, Associations and Advanced Concepts (General Concepts, Multiplicity, Link Attributes, Association as a Class, Roll names, Ordering, Qualification, Aggregation). Generalizations and Inheritance, Grouping Constructs. Aggregation versus Association And Generalization, Recursive Aggregates, and Propagation of Operations. Abstract Classes, Multiple Inheritance, Metadata, Candidate Keys, Constraints Introduction to Dynamic and Functional Modelling.	07	20
03	Overview of UML Efforts of standardization / Integration,OMG approval for UML, Scope of UML, Conceptual model of UML,Architectural -Metamodel, Unified Software Development Lifecycle. Introduction to UML Diagrams	05	15
04	UML - Structural Modelling Advanced Class Diagrams: - Advanced Classes and Relationships, Interfaces, Types and Roles, Packages, Instances. Object Diagrams. Component Diagrams: Terms and Concepts, Common modeling techniques. Deployment Diagrams: Terms and Concepts, Common modeling techniques.	05	15
05	UML Behavioral Modeling Use case diagram: Terms and Concepts, Model ling techniques. Interaction diagram (Sequence and collaboration diagram): Terms and Concepts, Model ling techniques. State chart diagram: Terms and Concepts, Modelling techniques. Activity diagram: Terms and Concepts, Modelling techniques.	12	20
Total		32	80

List of Practical:

1. Analyze and Design the UML diagrams for

- ATM System
- Railway Reservation System
- Library Management System.

Analyze and design the UML diagrams & develop programme for minimum three systems.

Recommended Books:

Sr. No.	Author	Title
1	Rumbaugh, Blaha	Object Oriented Modelling and Designing (Refer for First and Second Chapter)
2	Booch, Jacobson, Rumbaugh	The UML User Guide(Addison Wesley) (Refer for Third, Fourth and fifth Chapter)
3	Mark Paiestly	Practical OOD with UML-.(Refer for Fourth and Fifth Chapter)

Course Name : Computer Engineering

Course Code : CO

Semester : Sixth

Subject Title : Introduction to Embedded System (Elective-II)

Subject Code : CO6005

Teaching and Examination Scheme:

Teaching Scheme		Examination Scheme						
TH	PR	PAPER HRS	TH	INT	PR	OR	TW	TOTAL
02	04	03	80	20	--	25**	25*	150

Pre-requisites:

The students are expected to know the following Concepts:

1. Architecture of 8051 Microcontroller
2. Pin Diagram of 8051 Microcontroller
3. 8051 Instruction Set
4. Assembly Language Programming
5. RISC & CISC architecture.

Objectives:

The student will be able to:

1. Access embedded systems hardware units like processor, I/O device, On-chip and Off chip
Device, Power supply etc.
2. Interface various devices using ports.
3. Write embedded program.
4. Develop programmable interrupt controller.
5. Perform software analysis, design, implementation, testing, debugging for embedded
Systems.

Unit	Name of the Topic	Hours	Marks
01	8051- Microcontrollers Overview of 8051 family. Architecture. Memory organization. Functional pin, Ports & circuit. Addressing mode, Instruction Set.	03	05
02	Hardware overview Study of interrupt structure. Port structure. & Programming. Study of SBUF, TCON, TMOD, SMOD, SCON Register. Timer/Counter & Serial Communication Programming.	04	10
03	Serial Communication & Parallel communication Serial Communication - RS-232, I2C, CAN Parallel Communication - ISA, PCI, PCI-X Advance I/P O/P buses. Study of RS-232 Pinout.	05	15
04	Embedded System Introduction. Processor in the system. Different Hardware Units. Software Embedded into System. Exemplary Embedded system. System -On-Chip (SOC) & VLSI system.	03	15
05	Memory organization Structure unit in processor Processor selection Memory devices & Selection Allocation of memory DMA Interfacing processor & I/P O/P device	04	05
06	Device Driver & Interrupts Servicing Mechanism Device Drivers Parallel port device driver	05	15

	Serial port device driver		
	Internal Programmable timing devices		
	Interrupts handling Mechanism		
	Context switching		
07	RTOS & Interprocess Communication	08	15
	Concepts of RTOS		
	Requirement, Need, Specification of RTOS in Embedded systems		
	Multitasking		
	Task synchronization & Mutual Exclusion		
	Starvation, Deadlock, Multiple process		
	Problem of sharing data by Multiple task and routines		
	Interprocess communication		
	Total	32	80

List of Practical

It is expected that students should perform at least 8 experiments from the following list. Out of which any one of the experiment shall be performed on 8051 kit & remaining can be performed using pc & kit either using Assembler or "C" programming language.

Student must also do a mini project covering practical knowledge gained in the subject & submit a brief project report with subject Journal. This report should also include the importance of the Project from industry point of view.

1. Write a Program on Block Move.
2. Assume 1 Hz. Frequency pulse is connected to I/P P3.4 Write a Program to display count on LCD kit.
3. Write a Program to find the frequency of square wave generated on pin P1.0.
4. Write a Program to generate a square wave of 50 Hz. Frequency on pin P1.2 using interrupt for timer.
5. Write a Program to connect INT 1 pin to a switch that is normally high whenever it goes low LED should turn ON which is connected to P1.3 & LED is normally OFF. LED should be ON as long as switch is pressed.
6. Write a Program to transfer message "Yes" serially at 9600 baud rate 8-bit, data, 1 stop-bit & do this continuously.
7. Write a Program for Interfacing ADC & DAC.
8. Write a Program to Interface keyboard.
9. Write a Program to Interface LCD.
10. Write a Program to Interface stepper motor.

11. Mini project :

This project should be at least of level of interfacing some devices. "C"-Programming language can also be used for development of project.

Books:

Sr. No.	Author	Title	Publisher
1	Raj Kamal	Embedded Systems	--
2	David E. Simon	An Embedded Software Primer	Pearson Education
3	--	The 8051 Microcontroller And Embedded Systems	Pearson Education
4	Frank Vahid, Toney Givargis	Embedded System Design: A unified Hardware/Software Introduction	John Wiley
5	Craig Hollabaugh	Embedded Linux	Pearson Education
6	Daniel Lewis	Fundamentals of Embedded Software	Pearson Education
7	Barnett, Cox, O'Cull	Embedded C Programming and the Atmel AVR	Thomson Learning
8	Mike Predko	Programming and Customizing the 8051 Microcontroller	Tata Magrow Hill

Course Name : Computer Engineering

Course Code : CO

Semester : Sixth

Subject Title : ENTREPRENEURSHIP DEVELOPMENT

Subject Code : CO6005

Teaching and Examination Scheme:

Teaching Scheme		Examination Scheme						
TH	PR	PAPER HRS	TH	INT	PR	OR	TW	TOTAL
01	--	--	--	--	--	--	25*	25

Pre-requisites:

1. Knowledge of basic management concepts.

Objectives:

Students will be able to

1. Identify entrepreneurship opportunity.
2. Acquire entrepreneurial values and attitude.
3. Use the information to prepare project report for business venture.
4. Develop awareness about enterprise management.

Unit	Name of the Topic	Hours
01	Entrepreneurship, Creativity & Opportunities Concept, Classification & Characteristics of Entrepreneur Creativity and Risk taking. Concept of Creativity & Qualities of Creative person. Risk Situation, Types of risk & risk takers. Business Reforms, Process of Liberalization. Reform Policies. Impact of Liberalization. Emerging high growth areas. Business Idea Methods and techniques to generate business idea. Transforming Ideas in to opportunities transformation involves Assessment of idea & Feasibility of opportunity SWOT Analysis	03
02	Information And Support Systems Information Needed and Their Sources. Information related to project, Information related to support system, Information related to procedures and formalities SUPPORT SYSTEMS Small Scale Business Planning, Requirements. Govt. & Institutional Agencies, Formalities Statutory Requirements and Agencies.	02
03	Market Assessment Marketing -Concept and Importance Market Identification, Survey Key components Market Assessment	02
04	Business Finance & Accounts Business Finance Cost of Project Sources of Finance Assessment of working capital Product costing Profitability Break Even Analysis Financial Ratios and Significance Business Account Accounting Principles, Methodology Book Keeping Financial Statements Concept of Audit	03

05	Business Plan & Project Report Business plan steps involved from concept to commissioning: Activity Recourses, Time, Cost Project Report Meaning and Importance Components of project report/profile (Give list) Project Appraisal Meaning and definition Technical, Economic feasibility Cost benefit Analysis	03
06	Enterprise Management And Modern Trends Enterprise Management: Essential roles of Entrepreneur in managing enterprise Product Cycle: Concept and importance Probable Causes Of Sickness Quality Assurance Importance of Quality, Importance of testing E-Commerce Concept and process Global Entrepreneur	03
	Total	16

Prepare project report and study its feasibility

Recommended Books:

Sr. No.	Title	Author	Publisher
01	Entrepreneurship Theory and Practice	J.S. Saini B.S.Rathore	Wheeler Publisher New Delhi
02	Entrepreneurship Development	TTTI, Chandigadh	TTTI, Chandigadh
03	Entrepreneurship Development	E. Gorden K.Natrajan	Himalaya Publishing. Mumbai
04	Entrepreneurship Development	Preferred by Colombo plan staff college for Technical education.	Tata Mc Graw Hill Publishing co. ltd. New Delhi.

Components of Project Report:

1. Project Summary (One page summary of entire project)
2. Introduction (Promoters, Market Scope/ requirement)
3. Project Concept & Product (Details of product)
4. Promoters (Details of all Promoters- Qualifications, Experience, Financial strength)
5. Manufacturing Process & Technology
6. Plant & Machinery Required
7. Location & Infrastructure required
8. Manpower (Skilled, unskilled)
9. Raw materials, Consumables & Utilities
10. Working Capital Requirement (Assumptions, requirements)
11. Market (Survey, Demand & Supply)
12. Cost of Project, Source of Finance
13. Projected Profitability & Break Even Analysis
14. Conclusion.

Course Name : Computer Engineering
Course Code : CO
Semester : Sixth
Subject Title : INDUSTRIAL PROJECTS
Subject Code : CO6007

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	INT	PR	OR	TW	TOTAL
		06	--	--	--	--	50**	50*	100

Pre-requisites:

1. Knowledge of programming language such as VB
2. Knowledge of database concepts.
3. Knowledge of Ms Access, Oracle
4. Knowledge of software development lifecycle
5. Should be able to design using designing tool.

Objectives:

The students will be able to,

1. Work in Groups, Plan the work, and Coordinate the work.
2. Develop leadership qualities.
3. Develop Innovative ideas.
4. Practically implement the acquired knowledge.
5. Develop basic technical Skills by hands on experience.
6. Write project report.
7. Develop skills to use latest technology in Computer/Information Technology field.
8. Analyze the different types of Case studies..

Contents:

Two hours should be allotted for giving the Instructions for preparing a Project Report

Group	Projects
I Software Oriented Projects	(1) Develop Application Software for Hospital / Shopping Mall/Cinema Theatre/Commercial Complex/Educational Institute/Industrial Complex.
	(2) Develop Inhouse Systems.
	(3) Case Studies Related to Industries - Operation / Maintenance / Repair and Fault Finding. (Refer Guideline Document).
	(4) Develop Information Processing System.
	(5) Develop Web Based Applications using Web Technologies.
	(6) Develop Network monitoring system.
	(7) Develop systems for financial organisation.
	(8) Develop System Program based system like compilers, editors, spreadsheets, mini database systems.
II Hardware Oriented Projects	(1) Develop Intrusion Detection System.
	(2) Develop Speech Recognition System.
	(3) Develop Image Processing Systems.
	(4) Develop Expert Systems.
	(5) Develop Artificial Intelligence based Systems.
	(6) Develop various types of Interfacing Applications.
	(7) Develop device Controllers.
III Seminar	Seminar on any relevant latest technical topic based on latest research, recent trends, new methods and developments in the field of Computer Engineering / Information Technology.

Note: (1) One Project from any one group.

Recommended Reading

Sr. No.

1. IEEE Transactions/Journals
2. Computer Today.
3. PC Quest.
4. Data Quest
5. Any Journal Related to Computer/Information Technology/Electronics field.
6. Computer World
7. Chip
8. IT World

Course Name : Computer Engineering
Course Code : CO
Semester : Sixth
Subject Title : PROFESSIONAL PRACTICES -VI
Subject Code : CO6008

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	INT	PR	OR	TW	TOTAL
		02	--	--	--	--		50*	50

Pre-requisites:

1. Student should be reasonably proficient in English
2. Should have good communication skill
3. Should have knowledge of using internet and search engine.

Objectives:

Student will be able to:

1. Acquire information from different sources.
2. Prepare notes for given topic.
3. Present given topic in a seminar.
4. Interact with peers to share thoughts.
5. Prepare a report on industrial visit, expert lecture.

Activity	Content	Hours
01	Industrial Visits Structured industrial visits be arranged and report of the same should be submitted by the individual student, to form part of the term work. Visit a industry Collect organization chart Roles and responsibilities of each post. No. of resources available in industry etc	14
02	Lectures by Professional / Industrial Expert be organized from any of the following areas: Data Mining SAP Neural network Software project Management Wi-fi Technology Any other suitable topic	16
03	Information Search : 1. Buying of a new computer (cost, make, model etc.). 2. Comparison of .different computer architectures 3. Software security 4. Video conferencing 5. XML 6. Any other suitable topic	22
04	Group Discussion : The students should discuss in group of six to eight students and write a brief report on the same as a part of term work. The topic group discussions may be selected by the faculty members. Some of the suggested topics are Hacking Computer virus Chatting on Net Working BPO Software piracy Computer gaming Any other suitable topic	12
05	Student Activities : The students in a group of 3 to 4 will perform any one of the following activities (other similar activities to be considered), and write a report as part of term work. Activity : Collect information from Computer repairing center (at which level repairing is done, cost). Collect information regarding latest requirement for a job from any industry	16
Total		80