MOBILE COMPUTING

	L	**T/P**	**C**
Paper Code: ETIT-402			
Paper: Mobile Computing	3	1	4

INSTRUCTIONS TO PAPER SETTERS: **MAXIMUM MARKS: 75**
1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

Objectives: Should have studied papers such as Communication systems, Data communications and networking and wireless networks. To learn the basic concepts, aware of the GSM, SMS, GPRS Architecture. To have an exposure about wireless protocols –Wireless LAN, Bluetooth, WAP, Zig Bee issues. To Know the Network, Transport Functionalities of Mobile communication. To understand the concepts of Adhoc and wireless sensor networks. Introduce Mobile Application Development environment.

UNIT-I
Mobile Physical Layer: Review of generation of mobile services, overview of wireless telephony, cellular concept, GSM: air-interface, channel structure, location management: HLR-VLR, hierarchical, handoffs, channel allocation in cellular systems, CDMA, GPRS.
Mobile Computing Architecture: Issues in mobile computing, three tier architecture for mobile computing, design considerations, Mobile file systems, Mobile databases. WAP: Architecture, protocol stack, Data gram protocol, Wireless transport layer security, Wireless transaction protocol, wireless session protocol, application environment, and applications.
                                                                                                                        [T1] [T2][T3] [No. of Hrs. 12]

UNIT-II
Mobile Data Link Layer: Wireless LAN over view, IEEE 802.11, Motivation for a specialized MAC, Near & far terminals, Multiple access techniques for wireless LANs such as collision avoidance, polling, Inhibit sense, spread spectrum, CDMA , LAN system architecture, protocol architecture, physical layer MAC layer and management, Hiper LAN.
Blue Tooth: IEEE 802.15 Blue tooth User scenarios, physical, MAC layer and link management.
Local Area Wireless systems: WPABX, IrDA, ZigBee, RFID, WiMax.
                                                                                                                        [T1] [T2][T3] [No. of Hrs. 11]

UNIT-III
MOBILE IP Network Layer: IP and Mobile IP Network Layer- Packet delivery and Handover Management- Location Management- Registration- Tunnelling and Encapsulation-Route Optimization- Dynamic Host Configuration Protocol, Ad Hoc networks, localization, MAC issues, Routing protocols, global state routing (GSR), Destination sequenced distance vector routing (DSDV), Dynamic source routing (DSR), Ad Hoc on demand distance vector routing (AODV), VoIP –IPSec.
Mobile Transport Layer: Traditional TCP/IP, Transport Layer Protocols-Indirect, Snooping, Mobile TCP.
                                                                                                                        [T1] [T2][T3] [No. of Hrs. 11]

UNIT-IV
Support for Mobility: Data bases, data hoarding, Data dissemination, UA Prof and Caching, Service discovery, Data management issues, data replication for mobile computers, adaptive clustering for mobile wireless networks, Mobile devices and File systems, Data Synchronization, Sync ML.
Introduction to Wireless Devices and Operating systems: Palm OS, Windows CE, Symbion OS, Android, Mobile Agents. Introduction to Mobile application languages and tool kits.
                                                                                                                        [T1] [T2][T3] [No. of Hrs. 11]

Course Outcomes:
1. Gain the knowledge about various types of Wireless Data Networks and Wireless Voice Networks. 2. Understand the architectures, the challenges and the Solutions of Wireless Communication.
 3. Realize the role of Wireless Protocols in shaping the future Internet.
4. Able to develop simple Mobile Applications Using Toll kit.

Text Books:
[T1]   J. Schiller, "Mobile Communications", 2nd edition, Pearson, 2011.
[T2]   Raj Kamal "Mobile Computing" Oxford Higher Education, Second Edition, 2012.
[T3]   Dharam prakash Agrawal and Qing-An Zeng, "Introduction to Wireless and Mobile Systems" 3rd edition, Cengage learning 2013.

Reference Books:
[R1]   Asoke K Talukder, Hasan Ahmed,Roopa R Yavagal "Mobile Computing", Tata McGraw Hill Pub ,Aug – 2010
[R2]   Pei Zheng, Larry L. Peterson, Bruce S. Davie, Adrian Farrell "Wireless Networking Complete" Morgan Kaufmann Series in Networking , 2009 (introduction, WLAN MAC)
[R3]   Vijay K Garg "Wireless Communications & Networking" Morgan Kaufmann Series, 2010
[R4]   M. V. D. Heijden, M. Taylor, Understanding WAP, Artech House.
[R5]   Charles Perkins, Mobile IP, Addison Wesley.
[R6]   Charles Perkins, Ad hoc Networks, Addison Wesley.
[R7]   Uwe Hansmann, Lothar Merk, Martin S. Nicklous, Thomas Stober, "Principles of Mobile Computing", Springer.
[R8]   Evaggelia Pitoura and George Samarus, "Data Management for Mobile Computing", Kluwer Academic Press, 1998

Laboratory session: The student is advised to learn any of the following languages and use any one tool kit for generating mobile applications, such as game, Clock, calendar, Convertor, phone book, Text Editor etc.,
Language support: XHTML-MP, WML, WML Script.
Mobile application languages- XML, Voice XML, Java, J2ME, Java Card
TooL Kits: WAP Developer tool kit and application environment, Android Mobile Applications Development Tool kit.

[R1]   Donn Felker , "Android Application Development For Dummies", Wiley, 2010
[R2]   Reto Meier, " Professional Android 2 Application Development", Wrox's Prog. to Programmer Series.
[R3]   Ed Burnette, 'Hello, Android: Introducing Google's Mobile Development Platform' third edition' Pragmatic Programmers,2012
[R4]   Jerome(J.F) DiMarzio "Android A programmer's Guide" Tata McGraw-Hill 2010 Edition.
[R5]   Reza B'Far, "Mobile computing principles: Designing and Developing Mobile Applications with UML and XML", Cambridge University press, 2005.
[R6]   R.Riggs, A. Taivalsaari, M.VandenBrink, "Programming Wireless Devices with Java2 Platform, Micro Edition", ISBN: 0-201-74627-1, Addision Wesley,, 2001.

MACHINE LEARNING

		L	**T/P**	**C**
Paper Code: ETCS-402		3	0	3
Paper: Machine Learning				

INSTRUCTIONS TO PAPER SETTERS: **MAXIMUM MARKS: 75**
1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

Objective: To introduce the students about the knowledge of basic concepts of machine learning systems, types of learning etc.

UNIT-I
Introduction:
Basic concepts: Definition of learning systems, Goals and applications of machine learning. Aspects of developing a learning system: training data, concept representation, function approximation.
Types of Learning: Supervised learning and unsupervised learning. Overview of classification: setup, training, test, validation dataset, over fitting.
Classification Families: linear discriminative, non-linear discriminative, decision trees, probabilistic (conditional and generative), nearest neighbor.
[T1, T2][No. of Hrs: 12]

UNIT-II
Logistic regression, Perceptron, Exponential family, Generative learning algorithms, Gaussian discriminant analysis, Naive Bayes, Support vector machines: Optimal hyper plane, Kernels. Model selection and feature selection. Combining classifiers: Bagging, boosting (The Ada boost algorithm), Evaluating and debugging learning algorithms, Classification errors.
[T1, T2][No. of Hrs: 11]

UNIT-III
Unsupervised   learning: Clustering.   K-means.   EM   Algorithm.   Mixture   of   Gaussians. Factor analysis. PCA (Principal components analysis), ICA (Independent components analysis), latent semantic indexing. Spectral clustering, Markov models Hidden Markov models (HMMs).
[T1, T2][No. of Hrs: 11]

UNIT-IV
Reinforcement Learning and Control: MDPs. Bellman equations, Value iteration and policy iteration, Linear quadratic regulation (LQR). LQG. Q-learning. Value function approximation, Policy search. Reinforce. POMDPs.
[T1, T2][No. of Hrs: 10]

Text Books:
[T1]   Tom M Mitchell, Machine Learning, McGraw Hill Education
[T2]   Bishop, C. (2006). Pattern Recognition and Machine Learning. Berlin: Springer-Verlag.
[T3]   Duda, Richard, Peter Hart, and David Stork. Pattern Classification. 2nd ed. New York, NY: Wiley-Interscience, 2000. ISBN: 9780471056690.
[T4]   Tom M. Mitchell, Machine Learning .ISBN – 9781259096952, McGraw-Hill Series, Edition – First

Reference Books:
[R1]   Bishop, Christopher. Neural Networks for Pattern Recognition. New York, NY: Oxford   University Press, 1995. ISBN: 9780198538646.
[R2]   Introduction to Machine Learning - Ethem Alpaydin, MIT Press, Prentice hall of India.

HUMAN VALUES & PROFESSIONAL ETHICS – II

Paper Code: ETHS-402   **L**   **T/P**   **C**
Paper : Human Values & Professional Ethics-II   **1**   **0**   **1**

INSTRUCTIONS TO PAPER SETTERS: **MAXIMUM MARKS: 75**

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.

2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

3. Two internal sessional test of 10 marks each and one project report* carrying 5 marks.

Objectives:

1. *The main object of this paper is to inculcate the skills of ethical decision making and then to apply these skills to the real and current challenges of the engineering profession.*
2. *To enable student to understand the need and importance of value-education and education for Human Rights.*
3. *To acquaint students to the National and International values for Global development*

UNIT I - Appraisal of Human Values and Professional Ethics:
Review of Universal Human Values: Truth, Love, Peace, Right conduct, Non violence, Justice and Responsibility. Living in harmony with 'SELF', Family, Society and Nature. Indian pluralism - the way of life of Islam, Buddhism, Christianity, Jainism, Sikhism and Hinduism, Greek - Roman and Chinese cultural values.
Sensitization of Impact of Modern Education and Media on Values:
a) Impact of Science and Technology
b) Effects of Printed Media and Television on Values
c) Effects of computer aided media on Values (Internet, e-mail, Chat etc.)
d) Role of teacher in the preservation of tradition and culture.
e) Role of family, tradition & community prayers in value development.
Review of Professional Ethics: Accountability, Collegiality, Royalty, Responsibility and Ethics Living. Engineer as a role model for civil society, Living in harmony with 'NATURE', Four orders of living, their inter-correctness, Holistic technology (eco-friendly and sustainable technology).
[T1] [T2] [R1] [R5] [R4][No. of Hrs. 03]

UNIT II – Engineers responsibility for safety:
Safety and Risks, Risk and Cost, Risk benefit analysis, testing methods for safety. Engineer's Responsibility for Safety Social and Value dimensions of Technology - Technology Pessimism – The Perils of Technological Optimism – The
Promise of Technology – Computer Technology Privacy
Some Case Studies: Case Studies, BHOPAL Gas Tragedy, Nuclear Power Plant Disasters, Space Shuttle
Challenger , Three Mile Island Accident, etc.
[T1] [T2] [R4] [R2][No. of Hrs. 03]

UNIT III – Global Issues:
Globalization and MNCs: International Trade, Issues,
Case Studies: Kelleg's, Satyam, Infosys Foundation, TATA Group of Companies
Business Ethics: Corporate Governance, Finance and Accounting, IPR.
Corporate Social Responsibility (CSR): Definition, Concept, ISO, CSR.
Environmental Ethics: Sustainable Development, Eco-System, Ozone depletion, Pollution.
Computer Ethics: Cyber Crimes, Data Stealing, Hacking, Embezzlement.
[T1] [T2] [R4][No. of Hrs. 05]

UNIT IV - Engineers Responsibilities and Rights and Ethical Codes:
Collegiality and loyalty, Conflict of interests, confidentiality, occupational crimes, professional rights, responsibilities. To boost industrial production with excellent quality and efficiency, To enhance national economy, To boost team spirit, Work Culture and feeling of job satisfaction, National integration, Examples of some illustrious professionals.
Need for Ethical Codes, Study of some sample codes such as institution of Electrical and Electronics Engineers, Computer Society of India etc., Ethical Audit.
Development and implementation of Codes: Oath to be taken by Engineering graduates and its importance**,
[T1] [T2] [R4][R2][No. of Hrs. 05]

SOFTWARE PROJECT MANAGEMENT

		L	**T/P**	**C**
Paper Code: ETCS-416				
Paper: Software Project Management		**3**	**0**	**3**

INSTRUCTIONS TO PAPER SETTERS: **MAXIMUM MARKS: 75**
1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.
2. Apart from question no. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks.

Objective: To introduce the students about the knowledge of software project management, project estimation and evaluation alongwith risk analysis and management.

UNIT-I
Introduction to Software Project Management (SPM): Definition of a Software Project (SP), SP Vs. other types of projects activities covered by SPM, categorizing SPs, project as a system, management control.
Software Project scheduling and planning: Basic concepts, project scheduling, defining a task set and task network, scheduling, earned value analysis indicators, Project elements, WBS [Work Breakdown Structure] . Selecting a project, identifying project scope and objectives, identifying project infrastructure, analyzing project characteristics, identifying project products and activities.

[T1, T2][No. of Hrs. 11]

UNIT-II
Project Estimation and Evaluation: software project estimation, decomposition techniques, empirical estimation models, estimation for object oriented projects, estimation for Agile development and Web engineering projects.
Cost benefit analysis, cash flow forecasting, cost benefit evaluation techniques, risk evaluation. Selection of an appropriate project report; choice of process model, structured methods, rapid application development, water fall, spiral models, Prototyping delivery, Albrecht function point analysis.

[T1, T2][No. of Hrs. 11]

UNIT-III
Activity planning: Objectives of activity planning, project schedule, projects and activities, sequencing and scheduling activities, Network planning model; Network Diagrams : CPM, Bar Charts, Gantt Chart , PERT [Activity-on-arrow network; Activity on Node network] Precedence network; Forward pass; Backward pass; Critical path.
Risk Analysis and Management: Risk and risk types, Risk Break down Structure, Risk management process, Evaluating schedule risk using PERT.

[T1, T2][No. of Hrs. 10]

UNIT-IV
Resource allocation &Monitoring the control: Introduction, the nature of resources, identifying resource requirements, visualizing progress, Project Tracking, Status Reports, Milestone Analysis, Actual Versus Estimated Analysis of Effort and Schedule.
Software quality and project closure: Defining software quality attributes, ISO 9126, Software quality measures, Project Closure Analysis, The Role of Closure Analysis, Performing Closure Analysis.

[T1, T2][No. of Hrs. 10]

Text Books:
[T1]   Software Project Management (2nd Edition), by Bob Hughes and Mike Cottrell, 1999, TMH
[T2]   Software Project Management, Walker Royce, 1998, Addison Wesley.

Reference Books:
[R1]   R. S. Pressman, Software Engineering, TMH, 7th ed.
[R2]   Pankaj Jalote, Software project management in practice, Addison-Wesley
[R3]   Robert T. Futrell, Donald F. Shafer, and Linda I. Shafer, "Quality Software Project Management", 2002, Pearson Education Asia.
[R4]   Ramesh Gopalaswamy, "Managing Global Software Projects", 2003, Tata McGraw-Hill
[R5]   S. A. Kelkar, "Software Project Management"

PRINCIPLES OF PROGRAMMING LANGUAGES

		L	T	C
Paper Code: ETCS-424				
Paper: Principles of Programming Languages		3	0	3

INSTRUCTIONS TO PAPER SETTERS: **MAXIMUM MARKS: 75**

1. Question No. 1 should be compulsory and cover the entire syllabus. This question should have objective or short answer type questions. It should be of 25 marks.

2. Apart from Question No. 1, rest of the paper shall consist of four units as per the syllabus. Every unit should have two questions. However, student may be asked to attempt only 1 question from each unit. Each question should be of 12.5 marks

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Objective: The objective of the paper is to facilitate the student with the principles of programming languages that are required for an engineering student.

UNIT-I
Introduction: Syntax, semantics and pragmatics; Formal translation models, Variables, Expressions & Statements, Binding time spectrum; Variables and expressions; Assignment; I-values and r-values; Environments and stores; Storage allocation; Constants and initialization; Statement-level control structure.

[T1, T2][No. of hrs. 12]

UNIT-II
Primitive Types: Pointers; Structured types; Coercion; Notion of type equivalence;

Polymorphism: overloading, inheritance, type parameterization, Abstract data types; Information hiding and abstraction; Visibility, Procedures, Modules, Classes, Packages, Objects and Object-Oriented Programming.

[T1, T2][No. of hrs. 10]

UNIT-III
Storage Management: Static and dynamic, stack-based, and heap-based storage management.

Sequence Control: Implicit and explicit sequencing with arithmetic and non-arithmetic expressions; Sequence control between statements.

Subprogram Control: Subprogram sequence control, data control and referencing environments; parameter passing; static and dynamic scope; block structure.

[T1, T2] [No. of hrs. 12]

UNIT-IV
Concurrent Programming: Concepts, Communication, Deadlocks, Semaphores, Monitors, Threads, Synchronization.

Logic programming: Introduction; Rules, Structured Data and Scope of the variables; Operators and Functions; Recursion and recursive rules; Lists, Input and Output; Program control; Logic Program design.

[T1, T2][No. of hrs. 10]

Text Books:
[T1]   Programming Languages – Pratt T.V. (Pearson Ed).
[T2]   Introduction to Programming Languages: Programming in C, C++, Scheme, Prolog, C# and SOA – Chen Y., Tsai W-T. (Kendall).
[T3]   Programming Languages: Design & Implementation – Pratt T.W., Zelkowski M.V. (PHI).
[T4]   Programming Languages, Adesh K Pandey, Narosa Publishing House

References:
[R1]   Programming Languages: Principles and Practice – Louden K.C. (Addision-Wesley).
[R2]   Programming languages – Grover P.S. (S. Chand).
[R3]   Programming Languages: Principles and Paradigms - Tucker A., Noonan R. (TMH).

MOBILE COMPUTING LAB

	L	**T/P**	**C**
Paper Code: ETIT-452			
Paper: Mobile Computing Lab	**0**	**2**	**1**

List of Experiments:

The student is advised to learn any of the following languages and use any one tool kit for generating mobile applications, such as game, Clock, calendar, Convertor, phone book, Text Editor etc.,
Language support: XHTML-MP, WML, WML Script.
Mobile application languages- XML, Voice XML, Java, J2ME, Java Card
Tool Kits: WAP Developer tool kit and application environment, Android Mobile Applications Development Tool kit.
For MANETS, use of NS2/NS3 is recommended for two experiments.

Reference Books:

[R1] Donn Felker, "Android Application Development for Dummies", Wiley, 2010
[R2] Reto Meier, "Professional Android 2 Application Development", Wrox's Prog. To Programmer Series.
[R3] Ed Burnette, 'Hello, Android: Introducing Google's Mobile Development Platform' third edition' Pragmatic Programmers, 2012
[R4] Jerome (J.F) DiMarzio "Android A programmer's Guide" Tata McGraw-Hill 2010 Edition.
[R5] Reza B'Far, "Mobile computing principles: Designing and Developing Mobile Applications with UML and XML", Cambridge University press, 2005.
[R6] R.Riggs, A. Taivalsaari, M.VandenBrink, "Programming Wireless Devices with Java2 Platform, Micro Edition", ISBN: 0-201-74627-1, Addison Wesley,, 2001.

NOTE:- At least 8 Experiments out of the list must be done in the semester.

MACHINE LEARNING LAB

Paper Code: ETCS-454   **L   T/P   C**
Paper: Machine Learning Lab   **0   2   1**

List of Experiments:

1. Study and Implement the Naive Bayes learner using WEKA. (The datasets taken can be: Breast Cancer data file or Reuters data set).
2. Study and Implement the Decision Tree learners using WEKA. (The datasets taken can be: Breast Cancer data file or Reuter's data set).
3. Estimate the accuracy of decision classifier on breast cancer dataset using 5-fold cross-validation. (You need to choose the appropriate options for missing values).
4. Estimate the precision, recall, accuracy, and F-measure of the decision tree classifier on the text classification task for each of the 10 categories using 10-fold cross-validation.
5. Develop a machine learning method to classifying your incoming mail.
6. Develop a machine learning method to Predict stock prices based on past price variation.
7. Develop a machine learning method to predict how people would rate movies, books, etc.
8. Develop a machine learning method to Cluster gene expression data, how to modify existing methods to solve the problem better
9. Select two datasets. Each dataset should contain examples from multiple classes. For training purposes assume that the class label of each example is unknown (if it is known, ignore it). Implement the K-means algorithm and apply it to the data you selected. Evaluate performance by measuring the sum of Euclidean distance of each example from its class center. Test the performance of the algorithm as a function of the parameter k.
10. Implement the EM algorithm assuming a Gaussian mixture. Apply the algorithm to your datasets and report the parameters you obtain. Evaluate performance by measuring the sum of Mahalanobis distance of each example from its class center. Test performance as a function of the number of clusters.
11. Suggest and test a method for automatically determining the number of clusters.
12. Using a dataset with known class labels compare the labeling error of the K-means and EM algorithms. Measure the error by assigning a class label to each example. Assume that the number of clusters is known.

NOTE:- At least 8 Experiments out of the list must be done in the semester.

SOFTWARE PROJECT MANAGEMENT LAB

Paper Code: ETCS-456(ELECTIVE-I)   **L**   **T/P**   **C**
Paper: Software Project Management Lab   **0**   **2**   **1**

List of Experiments:

1. Consider the following information that you have compiled regarding the steps needed to complete a project. You have identified all relevant steps and have made some determination regarding predecessor/successor relationships. Using MS project , develop a simple network diagram for this project , showing the links among the project activities.

Activity		Predecessors
A-	Survey Site	--------------------------
B-	Install sewer and storm drainage	A
C-	Install gas and electric power lines	A
D-	Exacavate site for spec house	B,C
E-	Pour Foundation	D

2. Suppose that we add some duration estimates to each of the activities from question 1. A portion of the revised table is shown here. Recreate the network diagram for this project and note how MS project uses nodes to identify activity durations, start and finish dates, and predecessors. What is the critical path for this diagram? How do we know?

Activity		Predecessors	Duration
A-	Survey Site	--------------------------	5 Days
B-	Install sewer and storm drainage	A	9 Days
C-	Install gas and electric power lines	A	4 Days
D-	Exacavate site for spec house	B,C	2 Days
E-	Pour Foundation	D	2 Days
			2 Days

3. Draw the PERT diagram for the question no 2 using Activity on Arrow (AOA) convention and Activity on Node (AON) Convention.
4. Refer to the activity network shown here in the table. Suppose that we have modified the original table slightly to show the following predecessor relationship between tasks and resources assigned to perform these activities. Enter the information using MS project to produce a Gantt chart. Assume that each resource has been assigned to the project activity on full time basis.

Activity		Predecessors	Duration	Resource Assigned
A-	User Survey	-----------------	5 Days	Gail Wilkins
B-	Coding	A	12 Days	Tom Hodges
C-	Debug	A	5 Days	Tom Hodges
D-	Design Interface	B,C	6 Days	Sue Ryan
E-	Develop Training	D	5 Days	Reed Taylor

A. Using the resource usage view, can you determine any warning signs that some member of the project team has been over assigned?
B. Click on the Task Usage view to determine the specific days when there is conflict in the resource assignment schedule.

5. Using the keywords "Cases on project risk management "search the Internet to identify and generate the report on any recent example of a project facing significant risks. What steps did the project organization take to fist identify and then mitigate the risk factors in this case.

6. Go to the site http:/www. Dof.ca.gov/HTML/IT/PMM/OPT and reproduce the summary project budget worksheet. How would you adjust this worksheet if you were estimating the costs for a new software project? What items would you retain? Which would you remove or modify? Use MS Project to create project summary report.

7. Using the data shown in the network precedence table below, enter various tasks in MS Project. Then select a data approximately halfway through the overall project duration and update all tasks in the network to show current status. You may assume that all tasks in the first half of the project are now 100% completed. What does the tracing Gantt chart look like?

Activity		Predecessors	Duration
A-	Conduct Competitive analysis	--------------------------	3
B-	Review field sales reports	--------------------------	2
C-	Conduct tech capabilities assessment	--------------------------	5
D-	Develop focus group data	A,B,C	2
E-	Conduct telephone surveys	D	3
F-	Identify relevant specification	E	3
G-	Interface with marketing staff	F	1
H-	Develop engineering specifications	G	5
I-	Check and debug designs	H	4
J-	Develop testing protocols	G	3
K-	Identify Critical Performance levels	J	2
L-	Assess and modify product components	I,K	6
M-	Conduct capabilities assessments	L	12
N-	Identify selection criteria	M	3
O-	Develop RFQ	M	4
P-	Develop production master schedule	N,O	5
Q-	Liaison with sales staff	P	1
R-	Prepare product Launch	Q	3

8. Draw the PERT diagram for the question no 7 using Activity on Arrow (AOA) convention and Activity on Node (AON) Convention.
9. Go to a search engine and enter the term "Project failure" or "Project disaster" .Select one example and develop and analysis of the project using MS Project was it terminated or not? If not why in your opinion was it allowed to continue?
10. Do the case study of the following :
    A. The IT department at Kimble college
    B. The Tacoma Narrows suspension bridge
    C. Project Libra to terminate or not to terminate
    D. Johnson and Rogers Software Engineering Inc. (Ref.:- Jeffrey K. Pinto, Pearson publications)
11. What are the company's top risks? How severe Is their impact and how likely are they about to occur. Prepare RMMN plan for same. [Hint. Table should have following columns : Risk, Category, Problem , Impact , RMMN]
12. Explain Software Management Tools, CASE Tools, Planning and Scheduling Tools.
13. What is the Software Project Quality measures related to any projects?

PRINCIPLES OF PROGRAMMING LANGUAGES LAB

Paper Code: ETCS-458(ELECTIVE-II)   **L** **T/P** **C**
Paper: Principles of Programming Languages Lab   **0** **2** **1**

List of Experiments:-

1. Implement all major functions of string.h in single C program using switch case to select specific function from user choice (like strlen, strcat, strcpy, strcmp, strrev)
2. Write a program (WAP) in C to reverse a linked list iterative and recursive.
3. WAP in C to implement iterative Towers of Hanoi.
4. WAP in C++ to count the no.s of object of a class with the help of static data member, funtion and constructor.
5. WAP in C++ & Java to declare a class Time with data members mm for minutes, ss for seconds and hh for hours. Define a parameterize constructor to assign time to its objects. Add two time objects using member function and assign to third objects. Implement all possible cases of time.
6. WAP in C++ to define a class Complex to represents set of all complex numbers. Overload '+' operator to add two complex numbers using member function of the class and overload '*' operator to multiply two complex numbers using friend function of the class complex.
7. Implement simple multi-threaded server to perform all mathematics operation parallel in Java.
8. Write a program in to prepare a list of 50 questions and their answers.
9. Write a program to display 10 questions at random out of exp.8-50 questions (do not display the answer of these questions to the user now).
10. Implement producer-consumer problem using threads.

NOTE:- At least 8 Experiments out of the list must be done in the semester.