

MCA IV SEMESTER

10MC4HS01: Organizational Behavior and Human Resource Management

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UNIT-I

Introduction to Management: Concepts of Management and organization- Nature and Importance of Management, Functions of Management, Contributions of F.W. Taylor and Henri Fayal to the Management, Systems Approach to Management, managerial skills, Elements of Corporate Planning Process, Environmental Scanning, SWOT Analysis, Social responsibilities of Management.

UNIT-II

Introduction to Organizational Behaviour: Concept and meaning of Organizational Behaviour(OB), characteristics of OB, role of OB, approaches to the study of OB, Organizational theory, Models of OB.

UNIT-III

Individual dimensions of Organizational Behaviour: Concept of behaviour, Managerial implications of individual behaviour, individual differences.

Personality: concept, determinants of personality, theories of personality, Organizational applications of personality.

UNIT-IV

Perception: Process of perception, inter personal perception, managerial applications of perception. **Learning:** Components of learning process, factors affecting learning, theories of learning, cognitive learning theory, social learning theory.

UNIT –V

Nature and scope of HRM: Functions and objectives of HRM, evaluation of HRM, Human capital management, importance of HRM.

UNIT-VI

HR Planning ,Nature and importance of HRP, factors affecting HRP, job analysis, nature, process of job analysis, job design, factors affecting job design, contemporary issues in job design.

UNIT-VII

Recruitment and Selection: Nature and importance of recruitment, recruitment process, selection process, selection as a source of compliance advantage, barriers to effective selection, induction and orientation, requisites for effective orientation programme, evaluation of orientation programme.

UNIT –VIII

Training: Development and career management - Nature of training and development, gaps in training, the training process, impediments in effective training, career development. Contemporary issues in HRM, outsourcing HR activities, Business Process Outsourcing (BPO), call centers and challenges, balancing work life, managing diversity, globalization and HRM.

TEXT BOOKS:

1. L.M.Prasad, *Organizational behavior*, 4th Edition, Sultan Chand and Sons', 2006.
2. Prof. K.Aswhappa, *Human resource management, text and cases*, 5th Edition , McGraw Hill Publishing company ltd., 2009

REFERENCES:

1. Fred Luthans, *Organizational behaviour*, 9th Edition, McGraw hill higher education, 2002.
2. Shashi K. Gupta and Rosy Joshi, *Organizational behaviour*, 4th Edition, Kalyani Publications, 2006
3. P. Subba rao, *Personnel and Human resource management*, 4th Edition, Himalaya Publishing House Pvt. Ltd., 2009.

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Commencement of Class Work for V Semester	30/07/2012	

MCA IV SEMESTER
10MC40101: UNIX PROGRAMMING USING C++

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UNIT-I

Unix Utilities: Introduction to Unix file system, vi editor, file handling utilities, security by file permissions, process utilities, disk utilities, networking commands, cp, mv, ln, rm, unlink, mkdir, rmdir, du, df, mount, umount, find, unmask, ulimit, ps, who, w, finger, arp, ftp, telnet, rlogin. Text processing utilities and backup utilities, detailed commands to be covered are cat, tail, head, sort, nl, uniq, grep, egrep, fgrep, cut, paste, join, tee, pg, comm, cmp, diff, tr, awk, tar, cpio.

UNIT-II

Problem solving approaches in Unix: Using single commands, using compound Commands, shell scripts, C programs, building own command library of programs.

Working with the Bourne shell: what is a shell, shell responsibilities, pipes and input Redirection, output redirection, here documents, the shell as a programming language, shell meta characters, shell variables, shell commands, the environment, control structures, shell script examples.

UNIT-III

UNIX and ANSI Standards: The ANSI C standards, the ANSI/ISO C++ Standards, difference between ANSI C and C++, the POSIX standards, the POSIX.1 FIPS Standard, the X/Open Standards.

C++ Language review: C++ features for object oriented programming, C++ class declaration, friend functions and classes, class inheritance, virtual functions ,virtual base class, abstract class, the new and delete operators, operator overloading, template functions and classes, exception handling.

UNIT-IV

UNIX and POSIX APIs: UNIX and POSIX APIs, the UNIX and POSIX development environment, API common characteristics.

UNIX Files: File types, the UNIX and POSIX file systems, the UNIX and POSIX File attributes, inodes in UNIX System V, application program interface to files, UNIX kernel support files, relationship of C stream pointers and file descriptors, directory files, hard and symbolic links.

UNIT-V

UNIX File APIs: General file APIs, file and record locking, directory file APIs, device file APIs, general file class, regfile class for regular class, dirfile class for directory files, FIFO file class , device file class, symbolic link file class, file listing program.

UNIT-VI

UNIX Processes: UNIX kernel support for processes, process APIs, process attributes, change process attributes, a minishell Example.

Signals: UNIX kernel support for signals, signal, signal mask, sigaction, the SIGCHLD Signal and the waitpid API, the sigsetjmp and siglongjmp APIs, kill, alarm, Interval timers, POSIX. 1b timers, timer class.

UNIT-VII

Interprocess Communications: POSIX.1b IPC methods, the UNIX System V IPC methods, UNIX System V messages, POSIX.1b messages, UNIX system V semaphores, POSIX.1b semaphores, UNIX System V shared memory, memory mapped I/O, POSIX.1b shared memory.

UNIT-VIII

Sockets and TLI: Sockets, a stream socket example, client/server message handling example, TLI, TLI class, client/server message example, datagram example.

TEXT BOOKS:

1. T.Chan, *Unix system programming using C++*, PHI, 2008.
2. Sumitabha Das, *Unix Concepts and Applications*, 4th Edition, TMH, 2008.

REFERENCES:

1. W.R. Stevens, *Unix Network Programming*, Pearson Education, 2008.
2. Graham Glass, King Ables, *Unix for programmers and users*, 3rd Edition, Pearson Education, 2003.
3. Kernighan and Pike, *Unix programming environment*, Pearson Education, 2006.

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MCA IV SEMESTER
10MC40102: MULTIMEDIA APPLICATION DEVELOPMENT

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UNIT I

Overview of Graphics Systems: Video-display devices, and raster-scan systems, random scan systems, graphics monitors and workstations, input devices, hard copy devices, Graphics software.

Output primitives: Points and lines, line drawing algorithms, Loading the frame buffer, line function, Mid-point circle Algorithm, Ellipse Generating Algorithms.

UNIT II

Computer Animation: Design of animation sequence, general computer animation functions, raster animation, computer animation languages, key frame systems, motion specifications.

UNIT-III

Multimedia Authoring and Data representations: Multimedia and hypermedia, World Wide Web, overview of multimedia software tools. Graphics and image data representation graphics/image data types, file formats, Color in image and video: color science, color models in images, color models in video.

UNIT-IV

Action Script Core Concepts, Instance Methods Revisited, Static Variables and Static Methods, Functions, Inheritance, Compiling and Running a program, Datatypes and Type Checking, Interfaces.

UNIT-V

Events and Event Handling, Exceptions and Error Handling, Dynamic ActionScript, Scope, Events and Display Hierarchies, Interactivity.

UNIT-VI

Screen Updates, Programmatic Animation, Drawing with Vectors, Bitmap Programming, Text Display and Input.

UNIT VII

Basic Video Compression Techniques: Introduction to video compression, video compression based on motion compensation, search for motion vectors, MPEG, Basic Audio Compression Techniques.

UNIT-VIII

Multimedia Networks: Basics of Multimedia Networks, Multimedia Network
Communications and Applications: Quality of Multimedia Data Transmission, Multimedia over IP, Multimedia over ATM Networks, Transport of MPEG-4, Media-On- Demand (MOD).

TEXT BOOKS:

1. Donald Hearn and M.Pauline Baker ,*Computer Graphics C version*, 2nd Edition, Pearson Education, 2006.
2. Ze-Nian Li and Mark S. Drew ,*Fundamentals of Multimedia* , Pearson Education,2008.
3. Colin Mook ,*Essentials ActionScript 3.0*, SPD O, REILLY,2007.

REFERENCES:

1. Nigel chapman and jenny chapman, *Digital Multimedia*, Wiley-Dreamtech,2005.
2. Zhigand xiang, Roy Plastock ,*Computer Graphics* , Schaum's outlines, 2nd edition, Tata Mc-Grawhill, 2010.

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MCA IV SEMESTER
10MC40103: INFORMATION SECURITY
(ELECTIVE-I)

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UNIT-I

Introduction: Introduction to Security, Security Attacks, Security Services and Mechanisms, A model for Internetwork security, Internet Standards and RFCs.

Classical Encryption Techniques: Symmetric Cipher Model, Substitution Techniques, Transposition Techniques.

UNIT-II

Block Ciphers and the Data Encryption Standard: Block Cipher Principles, The Data Encryption Standard, The Strength of DES, Triple DES,

Advanced Encryption Standard: AES Cipher, Block Cipher Modes of Operation, Stream Ciphers and RC4, Placement of Encryption Function, Key Distribution.

UNIT-III

Public-Key Encryption and Message Authentication: Principles of Public-Key Cryptosystems, Public-Key Cryptography algorithms (RSA, Diffie – Hellman Key Exchange), Message Authentication and Hash Functions – Authentication Requirements, Authentication Functions, Message Authentication Codes.

UNIT-IV

Hash Functions: Hash Functions, Secure Hash Algorithm, HMAC, Digital Signatures, Key Management, Kerberos, X.509 Authentication Service.

UNIT-V

Electronic Mail Security: Pretty Good Privacy (PGP) and S/MIME.

UNIT-VI

IP Security: Overview, IP Security Architecture, Authentication Header, Encapsulating Security Payload, Combining Security Associations and Key Management.

UNIT-VII

Web Security: Web Security Considerations, Secure Socket Layer (SSL) and Transport Layer Security (TLS), Secure Electronic Transaction (SET).

UNIT-VIII

System Security: Intruders, Intrusion Detection Systems, Viruses and Related Threats, Virus Countermeasures, Firewall Design Principles, Trusted Systems.

TEXT BOOK:

1. William Stallings, *Cryptography and Network Security*, 4th Edition, Pearson Education, 2009.

REFERENCES:

1. William Stallings, *Network Security Essentials (Applications and Standards)*, 3rd Edition, Pearson Education, 2009.
2. Atul Kahate, Keith Strassberg, *Cryptography and Network Security*, 2nd Edition, TMH, 2008.
3. Michael E. Whitman, Herbert J. Mattord, *Principles of Information Security*, Cengage Learning, 2008.
4. Charlie Kaufman, Radia Perlman and Mike Speciner, *Network Security - Private Communication in a Public World*, 2nd Edition, Pearson Education, 2005.
5. Robert Bragg, Mark Rhodes, Ousley, *Network Security: The Complete Reference*, TMH, 2009.

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MCA IV SEMESTER
10MC40108: SOFTWARE PROJECT MANAGEMENT
(ELECTIVE –II)

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UNIT-I

Conventional Software Management : The waterfall model, conventional software Management performance

Evolution of Software Economics : Software Economics, pragmatic software cost estimation

UNIT-II

Improving Software Economics : Reducing Software product size, improving software processes, improving team effectiveness, improving automation through software environments, Achieving required quality, peer inspections: A Pragmatic view

The old way and the new : The principles of conventional software Engineering, principles of modern software management, transitioning to an iterative process

UNIT-III

Life cycle phases : Engineering and production stages, inception phase, Elaboration phase, construction phase, transition phase

Artifacts of the process : The artifact sets, Management artifacts, Engineering artifacts, pragmatic artifacts

UNIT-IV

Model based software architectures : A Management perspective and technical perspective

Work Flows of the process : Software process workflows, Iteration workflows

UNIT-V

Checkpoints of the process : Major mile stones, Minor Milestones, Periodic status assessments

Iterative Process Planning : Work breakdown structures, planning guidelines, cost and schedule estimating process, Iteration planning process, Pragmatic planning

UNIT-VI

Project Organizations and Responsibilities : Line-of-Business Organizations, Project Organizations, Evolution of Organizations

Process Automation : Tools: Automation Building blocks, The Project Environment: Roundtrip Engineering, Change management, Infrastructures, Stakeholder Environments

UNIT-VII

Project Control and Process instrumentation: The seven core Metrics, Management indicators, Quality indicators, life cycle expectations, pragmatic Software Metrics, Metrics automation. **Tailoring the Process**: Process discriminants

UNIT-VIII

Future Software Project Management: Modern Project Profiles, Next generation Software economics, modern process transitions

Case Study: The command Center Processing and Display system- Replacement (CCPDS-R)

TEXT BOOK:

1. Walker Royce, *Software Project Management*, 6th Edition, Pearson Education, 2007.

REFERENCE BOOKS:

1. Bob Hughes and Mike Cotterell, *Software Project Management*, 4th Edition, Tata McGraw-Hill, 2006.
2. Joel Henry, *Software Project Management*, Pearson Education, 2004.
3. Pankaj Jalote, *Software Project Management in practice*, Pearson Education.

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MCA IV SEMESTER
10MC40111: UNIX PROGRAMMING USING C++ LAB

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Week1:

- a) file handling utilities.
- b) Text processing utilities and backup utilities

Week2:

- a) process utilities and disk utilities.
- b) networking commands

Week3:

- a) Write a shell script that copies multiple files to a directory.
- b) Write a shell script (small calculator) that adds, subtracts, multiplies and divides the given two integers. There are two division options: one returns the quotient and the other returns remainder. The script requires 3 arguments: The operation to be used and two integer numbers. The options are add (-a), subtract (-s), multiply (-m), quotient (-c) and remainder (-r).

Week4:

- a) Write a shell script that counts the number of lines and words present in a given file.
- b) Write a shell script that displays the list of all files in the given directory

Week5:

- a) Write a shell script to generate a multiplication table.
- b) Write a shell script to reverse the rows and columns of a matrix.

Week6:

- a) Write a C program that counts the number of blanks in a text file Using standard I/O and System calls.
- b) Implement in C the following Unix commands using system calls.
 - a) cat
 - b) ls
 - c) mv

Week7: Write a program that takes one or more file/directory names as command line

input and reports the following information on the file:

- a) File type.
- b) Number of links.
- c) Time of last access.
- d) Read, Write and Execute permissions

Week8:

- a) Write a C++ program that illustrates uses of the mkdir, opendir, readdir, closedir, and rmdir APIs.
- b) Write a C++ program that illustrates how to execute two commands concurrently with a command pipe

Week9:

Write a C++ programs that illustrates the following

- a) Two-way communication with unidirectional pipes.
- b) Two-way communication with bidirectional pipes

Week10:

- a) Write a C++ program that illustrates the creation of child process using fork system call.
- b) Write a C++ program that displays the real time of a day every 60 seconds.

Week11:

- a) Write a C++ program that illustrates file-locking using semaphores.
- b) Write a C++ program that implements a producer-consumer system with two processes.
(Using semaphores)

Week12:

Write a C++ program that illustrates inter process communication using shared memory system calls.

Week13:

Write a C++ program that illustrates the following

- a) Creating a message queue.
- b) Writing to a message queue.
- c) Reading from a message queue.

Week14:

Write a C++ program to develop simple client and server application using sockets
(Connection less).

Week15:

Write a C++ program to develop simple client and server application using sockets
(Connection Oriented).

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MCA IV SEMESTER
10MC40112: MULTIMEDIA APPLICATION DEVELOPMENT LAB

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Week 1:

1. Draw a rectangle, and apply the following animation techniques.
 - i. Motion Tween.
 - ii. Rotation.
 - iii. Shrink and Grow.
 - iv. Shape Tween.
 - v. Add Guide Layer.

Week 2:

2. Create action sequence of animation.
Ex: Moving and jumping of a stick man
3. Animate a Flash movie that shows the truck moving behind the trees.

Week 3:

4. Animate a Flash movie that shows the Flag hoisting.
5. Animate a Flash movie that shows Cannon blast. Use motion tween to cannon up into a firing position and then apply shape tween to flame explosion. Add guide layer to move the flame in a specified path from cannon barrel's to the destination.
6. Create solar system by using guide layer.

Week 4:

7. Animate a Flash movie that shows the Spotlight Masking. Use text as a masked object and circle as a mask object.
8. Create, following Flash Symbols.
 - a. Movie Clip.
 - b. Button.

Note: Create butterfly animation by using guide layer

9. Animate a Flash movie that shows rolling wheels on a moving vehicle. Create a movie clip symbol of a rolling wheel and then add two instances of that symbol to the vehicle. Apply motion tween to make the vehicle drive across the road.

Week 5:

10. Create a Flash movie that enables the user to click left and right arrow buttons to view the images of the Movie Clip in left and right directions respectively. Initially you add a set of images

to the Movie Clip and then view the images of the Movie Clip through the buttons. Add necessary

Action Script code to buttons.

Note: left and right arrow buttons should be created by the user.

Week 6:

11. Create a Flash movie that accepts User Id and Password from the user. Validate User Id and

Password fields whenever the user presses the submit button and then display appropriate message

to the user. Store different user's user id and password details into an array object. The movie will

not allow the user to continue the playing unless he or she entered something into the user id and

password fields.

Week 7:

12. Create a Flash movie that shows the Movie Clip and allow the user to control the movement of the movie clip through the keyboard. Once the user presses the Left, Up, Right and Down arrow keys from the keyboard, the movie clip will move in Left, Upward, Right and Downward directions respectively. You should move the movie clip in a specified boundaries of the left, top, right and bottom corners of the stage.

Note: Assume any geometric shape as a Movie Clip.

Week 8:

13. Write an Action Script application to sort 'N' number of integer Array elements.

Week 9:

14. Write an Action Script application to display the Movie Clip's randomly.

15. Create a Flash movie that shows a Digital Clock.

Week 10:

16. Write an Action Script application to an Indian Currency Converter.

Week 11:

17. Write an Action Script application to design the User Registration form.

Week 12:

18. Create a Flash movie that shows a Digital Clock.

Week 13:

19. Create Traffic animation.(Traffic controlled by the signals)

Week 14:

20. Create Analog clock.

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