



# AKU B.E./B.Tech CSE Sem 8 syllabus

## Personal Management and Industrial Relations

### PERSONNEL MANAGEMENT AND INDUSTRIAL RELATION

#### CREDITS - 03

**1. Meaning, concept, function** , & importance of personnel management, role of a personnel manager, personnel policies Need of a personnel policies, org anization of personnel Department ( functional basis, service basis and chentile basis)

**2. Manpower planning** : Meaning & concept, need for manpower planning, types of manpower planning, meaning and concept of job analysis, job description & job specification, uses of job analysis information, Recruitment, selection meaning and steps of selection process, meaning of induction

**3. Training and develop** : Meaning, need & importance for training, method of training, development meaning of development, method of development.

**4. Performance appraised** :(a) Meaning, Objective, method of performance appraisal .

(b) Transfer : meaning objective, types.

(c) Promotion : Meaning , policies, basis of promotion.( Separation : Resignation, Discharge & Dismissal, Suspension & Retrenchment, Layoff.

**5. Wages and salary administration** :(a). Meaning purpose & principle of wage & salary administration, factors influencing wage & salary adminis tration.

( b). Meaning of wage & salary, minimum wage , fair wage& living , wage.

(c). Meaning of money and real wage.

(d). Methods of wage payment time rate & piece rate.

(e). Incentive Financial Incentive & non financial Incentive, method of wage payment based on result.

### **6.(a) Health, safety and welfare facilities.**

(b) social security

(1) meaning and concepts, objective.

(2) form of social security social insurance & social assistance.

(c) Problem arising from disease, invalidity, accident, old age and unemployment.

**7.( a).Industrial Relation :** meaning & concept, changing concept of industrial relation, role played by the employer, trade union & government, current I. R. position in India, I.R. policies of government of India.

**(b). Trade Union :** Meaning and concept, objective, functions, type, method of trade union.

### **Reference Book :**

1. Industrial relation, Trade Union & Labour Relation by G.P.Sinha & PRN Sinha, Pearson.

## **Information security**

### **INFORMATION SECURITY**

#### **CREDITS - 03**

**1.Introduction, CRYPTO BASICS :** Classic Crypto, Simple Substitution Cipher,, Cryptanalysis of a simple substitution, Double Transposition Cipher, One time Pad, Project VENONA, Codebook Cipher.

**2.SYMMETRIC KEY CRYPTO :** Stream Ciphers, A5/1, RC4, Block Ciphers, Feistel Cipher, DES, Triple DES, AES.

**3.PUBLIC KEY CRYPTO :** Knapsack, RSA, Diffie Hellman, Uses for Public Key Crypto.

#### **4.HASH FUNCTION :**

**AUTHENTICATION :** Authentication Methods, Keys versus Passwords, Biometrics, Two Factor Authentication.

**AUTHORIZATION :** Access Control Matrix, Multilevel Security Models, Firewalls, Intrusion Detection.

**5.SOFTWARE FLAWS AND MALWARE** : Software Flaws, Malware, Miscellaneous Software Based Attacks.

**6.OPERATING SYSTEM AND SECURITY** : Operating System Security Functions, Trusted Operating System, Next Generation Secure Computing Base.

**Reference Books :**

- 1.Introduction to Computer Security by Bishop and Venkatramanayya, Pearson Education.
2. Cryptography and Network Security : Principles and Practice by Stallings, PHI.

**Multimedia Technology and Application (Elective)**

**MULTIMEDIA TECHNOLOGY AND APPLICATION**

**CREDITS - 03**

**1.Introduction** : Multimedia today, Impact of Multimedia, Multimedia Systems, Components and its Applications.

**2.Text and Audio** : Text: Types of Text, Ways to Present Text, Aspects of Text Design, Character, Character Set, Codes, Unicode, Encryption; Audio: Basic Sound Concepts, Types of Sound, Digitizing Sound, Computer Representation of Sound (Sampling Rate, Sampling Size, Quantization), Audio Formats, Audio tools, MIDI.

**3.Image and Video** : Image: Formats, Image Colour Scheme, Image Enhancement; Video: Analogue and Digital Video, Recording formats and Standards (JPEG, MPEG, H.261) Transmission of Video Signals, Video Capture and Computer based Animation.

**4.Synchronization** : Temporal relationships, synchronization accuracy specification factors, quality of service.

**5.Storage models and Access Techniques** : Magnetic media, optical media, file systems (traditional, multimedia)

**6.Multimedia devices** : Output devices, CD ROM, DVD, Scanner, CCD

**7.Image and Video Database** : Image representation, segmentation, similarity based retrieval, image retrieval by colour,

shape and texture: Indexing kd trees, R trees, Quad trees; Case Studies : QBIC, Virage, Video Contentquerying, video segmentation, indexing.

**8. Document Architecture and Content Management :** Content Design and Development, general Design Principles.

**9.Hypertext :** Concept, Open Document Architecture (ODA), Multimedia and Hypermedia Coding Expert Group (MHEG), Standard Generalized Markup Language (SGML), Document type Definition (DTD), Hypertext Markup Language (HTML) in Web Publishing, Case study of Application.

**10.Multimedia Application:** Interactive television, Video on demand, Video Conferencing, Educational demand, Video Conferencing, Educational Applications, Industrial Applications, Multimedia archives and digital libraries, media editors.

**Reference Books :**

1. Multimedia Literacy by Fred Hoffsteller, McGraw Hill.
2. Multimedia Fundamentals : Vol. 1 Media Coding and Content Processing by Ralf Steinmetz and Klara Hahrstedt, PHI.
3. Multimedia in Practice : Technology and Application by J. Jeffcoate, PHI.
4. Multimedia Communications by Fred Halsall, Pearson Ed.

**Introduction to Communication Systems (Elective)**

INTRODUCTION TO COMMUNICATION SYSTEMS

CREDITS - 05

**1. Periodic signals** (sinusoidal, rectangular, saw tooth and triangular wave) and its Fourier series expansion with single side representation in real frequency domain and with double side representation in rotating phasor domain.

**2. Aperiodic signal :** A signal pulse event and its Fourier transform; impulse response of a linear time invariant system, convolution and response to arbitrary input.

**3. Block diagram** of communication system and comparative study of analog and digital communication.

**4. Modulation** (upward frequency translation) & demodulation (downward frequency translation) and the need for modulation: broad classification of modulation [linear (amplitude AM) and exponential (frequency FM and phase PM)]

**5. Generation of double side band (DSB)** with carrier, double side band with suppressed carrier (DSBSC) and single side band with suppressed carrier: demodulation of double side band with carrier incoherent detector or envelope detector, peak diode detector, coherent or synchronous detection of DSBSC and single side band with suppressed carrier.

**6. Analog pulse, modulation** PAM, PWM, PPM and demodulation; comparative study of various analog pulse modulation; comparison of incoherent and coherent detection.

**7. Superhetrodyne Receivers** : Intermediate Frequency and its advantages, alignment and tracking, image rejection and IC version of the Receiver. Frequency Multiplexing in carrier Telephony.

**8. Generation** of FM signals (direct and indirect methods) and  
Lecture : 3

**9. Comparative study** of SNR in AM, FM and PM System and use of emphasis Circuit in FM for SNR optimization.

**10. Television block diagram of the transmitter and receiver** : description and working of video camera ;description working of B W colour TV receiver ;description of the composite signal in B W colour TV.

**11. CCD Flat Panel Displays.**



## **Reference Books ;**

1. Communication system by Bruce carison . TMH.
2. Electronic Communication system by Kennedy IV Edition. TMH.
3. Electronic Communication system by Roddey & Coolen, Pearson.
4. Telecommunication s ystem Engg. by Freeman John Wiley
5. Communication system by Haykin,Wiley

## **Intrusion Detection (Elective)**

### **INTRUSION DETECTION**

#### **CREDITS - 03**

**1.Basics :** Understanding Intrusion Detection, Unauthorized activity, TCP Dump.

**2.Architecture :** IDS and IPS architecture, IDS and IPS internals.

**3.Implementation and Deployment :** Internet Security System's Real Source, Snort, NFR Security.

**4.Security and IDS Management :** Data Correlation, Incident Response, Policy and Procedures, Law, Standards and organizations, Security Business issues, Future of Intrusion Detectio n and Prevention.

#### **Reference Books :**

1. Implementing Intrusion Detection systems by Tim Crothers, Wiley.

## **XML Web Services (Elective)**

### **XML WEB SERVICES**

#### **CREDITS - 05**

**1.XML :** Introduction to XML, DTD, CSS, Namespace, Schema, XSD, XSL.

**2.Introduction to Web Services :** The Web Services Type System, Data Type Mappings.

**3.SOAP :** Communication on the Web

**4.WSDL :** Describing Web Services.

**5.SOAP Tools SOAP Toolkit**, components and architecture, exposing and invoke Web services.

**6.Developing Web Services** : Using ASP.Net application using c# programming environment.

**7.Web Services** : Working with WSDL and invoking them using .NET client/Java Client through the code.

**8.SOAP Header** : Managing the risks of Web Service, Interface Based Web Service.

**9.Development of Interface based Programming** : WSDL bindings, Reusable Web Services Infrastructure.

**10.UDDI** : A Web Service, Framework & Sample Applications.

**11. SOAP Toolkit Interoperability**

**Reference Books :**

1. Beginning XML by David Hunter, Andrew Watt (Wrox Publication)
2. Professional ASP.NET 2.0 by Thiru Thangarathinam (Wrox Publication)

## **Data Mining**

### **05 1x22 DATA MINING**

**Credit : 5**

**1. Introduction** : Motivated Data Mining Data Mining on what kind of Data, Data Mining Functionalities, Classification of Data Mining System, Major issues in Data Mining.

**2. Data Warehouse and OLAP Technology for Data Mining** : Data Warehouse, Data Warehouse Architecture, Data Warehouse Implementation, Development of Data cube technology, Data Warehousing to Data Mining.

**3. Data Preprocessing** : Data cleaning, Data Integration and Transformation, Data Reduction, Discrimination and concept Hierarchy Generation.

#### **4. Data Mining Primitives, Primitives, Languages and System Architectures :**

Data Mining Primitives, Data Mining query language, Designing GUI on a Data Mining query language, Architectures of Data Mining System.

**5. Mining Association rules in large database :** Association rules mining, Mining single-dimensional Boolean Association rules from transaction database, mining multilevel Association rules from transaction database, Mining multidimensional Association rules from relational databases and Data warehouses, Association mining to correlation analysis, Constraint based association mining.

**6. Classification and Prediction :** What is classification and prediction, Issues regarding classification and prediction, Classification by decision tree Induction, Bayesian Classification, Classification by Back propagation, Classification based on concepts from association rule mining, Prediction, Classification accuracy.

**7. Cluster Analysis :** What is cluster analysis, Types of data in cluster analysis, A categorization of major clustering methods, Partitioning methods, Hierarchical Methods, Density based methods, Grid based methods, Model based clustering methods.

**8. Applications and trends in Data Mining :** Data mining applications, Social impacts of Data Mining, Trends in Data Mining.

#### **Text Books :**

1. Data Mining Concepts and Techniques by Jiawei Han, Micheline Kamber, Elsevier.
2. Data Mining. A tutorial-based Primer by Roiger, Michael W. Geatz and Pearson Education.
3. Data Mining Introductory & advanced topic by Margaret H. Dunham , Pearson Education

#### **Reference Books :**

1. Data Mining : Next Generation Challenges and Future Direction by Kargupta, et al, PHI.
2. Data Warehousing, Data Mining & OLAP by Alex Berson Stephen J.Smith.



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