

Jodhpur National University
M.Tech. Programme, ELECTRICAL
(Power Systems)

TEACHING /EXAMINATION/ SCHEME &SYLLABUS

Teaching Hrs.
L-3, T-2, P-0

Exam. Hrs : 3 Hrs.
Exam Marks : 150 { Internal (50) & University (100)}

IMEE02 ADVANCED POWER SYSTEM, PERFORMANCE AND REGULATION

FACTS: Problem of AC transmission systems, basic principle of power flow control of an AC transmission line. Basic types of FACTS CONTROLLERS. Brief description of FACTS controllers. STATCOM static voltage and phase angle regulators, thyristor switched and thyristor Controlled series capacitors, Unified Power Flow Controller.

Distribution Automation: Introduction to distribution automation. Concepts of communication-Power line carrier, radio communication, fiber optics, satellite communication and sensors. Introduction to supervisory control and data acquisition (SCADA), Standard & protocols. Brief description of an automation system.

Performance: Supply code, Grid standards & Grid code, National load dispatch center, Regional load dispatch centre. State load dispatch centre, standard of performance.

Regulation: Duty of distribution licensee. Open access, Power Marketing & pricing, Responsibility of consumers, captive generating plant. Class of consumers, Redressal of grievances-electricity Act - 2003.

References:

Power System Analysis: Operation and Control-Second Edition by Cbakrabati Abhijit, Halder Sunita (PH INDIA), Power System Optimization-Kothari D P , Dhillon J S (PH India)

Electricity ACT 2003

Electrical Power Planning for Regulated and Deregulated Markets by Arthur Mazer. April 2007 (WILEY)

Grid Standards , and standard of performance issued by RERC.

FACTS overview published by CIGRE & IEEE PE5-1995, ref IEEE 95 TP 108.

Understanding Facts, Concepts and Tech. of Flexible

A.C. Trans. system by N.G. Hingorani- (Standard Publishers) Seller: Indus International).

Jodhpur National University
M.Tech. Programme, ELECTRICAL
(Power Systems)

TEACHING /EXAMINATION/ SCHEME &SYLLABUS

Teaching Hrs.
L-3, T-2, P-0

Exam. Hrs : 3 Hrs.

Exam Marks : 150 { Internal (50) & University (100)}

1MMEE03

INSTRUMENTATION:-

1. GENERALIZED APPROACH TO A MEASURING SYSTEM:

Functional description, Input Output configuration, Methods of correction for Interfering and -modifying inputs, predominance characteristic of instruments Error analysis.

2. SYSTEM PERFORMANCE MEASUREMENT:

System inputs; system linearing and distortion, sine wave testing, pulse testing, random signal testing, Pseudo random binary sequences and their applications..

3. FEEDBACK MESURING SYSTEM AND INVERSE TRANSDUCERS:

Feedback for control and measurement, Force and torque balance, current balance, Heat flow balance, voltage balance, temperature balance, Inverse transduces.

4. DATA TRANSMISSION AND TELEMETRY:

Modulation and encoding methods, transmission media, Bandwidth and noise restriction. Statistical measurements, multiplexing.

5. DATA PROCESSING, DISPLAY AND RECORDING:

Data display, Data recording, Data logging, Data acquisition and Data processing.

BOOKS RECOMMENDED.

1. Instrumentation Measurement and feedback By: Barry E.Jones
TataM.Graw,Hill- latest Editions, Indian Publication.-
1. Measurement system Application and Design - Fourth Edition
By: Ernest O. Doebelin
Mc Graw Hill International Addition
2. Instrumentation for Engineers and scientist -.2009
By: John Turner & Martyn Hill
Oxford University Press
3. Intelligent Instrumentation
By: George C Barney

Jodhpur National University
M.Tech. Programme, ELECTRICAL
(Power Systems)

TEACHING /EXAMINATION/ SCHEME &SYLLABUS

Prentice - Hall of India

Prentice - Hall- Economic Design

Jodhpur National University
M.Tech. Programme, ELECTRICAL
(Power Systems)

TEACHING /EXAMINATION/ SCHEME &SYLLABUS

Teaching Hrs.
L-3, T-2, P-0

Exam. Hrs : 3 Hrs.
Exam Marks : 150 { Internal (50) & University (100)}

1MEE04 NEURAL NETWORKS AND FUZZY LOGIC

Neural Networks Characteristics. Characteristics of. Neural networks, Historical development of neural networks principles, artificial neural networks Terminology, Models of neuron, Topology, Basic learning laws.

Learning Rules: The Perceptron, Linear separability, Hebb's rule, delta rule, Widrow & Hoff LMS rule, Correlation learning rule, instar and outstar learning rules. Unsupervised learning, competitive learning, K-means clustering algorithm, Kohonen's feature maps Different Neural Network: Basic Learning law in RBF nets, Back propagation method, feed forward network, ART network.

Application of Neural Nets: Pattern recognition, application of BPN, optimization, associative memories, vector quantization, applications in speech & decision making Fuzzy Logic: Basic concept, fuzzy v/s crisp logic set, variables, membership function, operation's inference, techniques, defuzzification, basic inference algorithm. Application Of Fuzzy Logic, Fuzzy system design & implementation.

Books:

- 1 Philip D. Wasserman, Neural Computing Theory and Practice. ANZA research, Inc.
2. Mohamad H. Hassun, Fundamentals of Artificial Neural Networks, PHI
3. Zurada - Artificial Neural Networks

Reference

1. Fuzzy systems design principles, building Fuzzy IF-THEN rule bases by Riza C. Berkin & Trubatch. Jeeebcss
2. Vegna Naryanan - Artificial neural networks
3. Bart Kosko- Neural networks & Fuzzy Logic
4. Simon Kaykin - Neural Network person Lpe
5. Neural Network - Satish Kumar
6. Fundamental of Neural Network - Laurent Forself