

# STUDY AND EVALUATION SCHEME FOR DIPLOMA PROGRAMME IN ELECTRICAL & ELECTRONICS ENGINEERING

## Sixth Semester

Sr. No.	Subject	L	T	P	Total	Evaluation Scheme						Total Marks
						Internal Assessment		External Assessment (Examination)				
						Theory	Practical	Theory		Practical		
						Max. Marks	Max. Marks	Max. Marks	Hrs.	Max. Marks	Hrs.	
6.1	Computer Network	4	-	3	7	20	30	50	2.5	50	3.00	150
6.2	Micro Hydel and Non-conventional Energy	5	-	3	8	20	30	50	2.5	50	3.00	150
6.3	PLC and Microcontrollers	5	-	3	8	20	30	50	2.5	50	3.00	150
6.4	Electrical Installations in Buildings	5	-	-	5	50	-	50	2.5	-	-	100
6.5	Mobile Communication	3	-	3	6	20	30	50	2.5	50	3.00	150
6.6*	Employable Skills	-	-	4	4	-	25	-	-	-	-	25
6.7	Project work	-	-	6	6	-	50	-	-	175	4.00	225
General proficiency #		-	-	4	4	-	25	-	-	-	-	25
Industrial Exposure (Assesment at Inst. Level)+		-	-	-	-	-	25	-	-	-	-	25
Total		22	-	26	48	130	245	250	-	375	-	1000

\* Common with other Engineering Diploma Programmes

# General Proficiency will comprise of various co-curricular activities like games, hobby clubs, seminars, declamation contests, extension lectures, NCC, NSS and cultural activities etc.

+ Industrial visit compulsory to minimum 2 industries or Departments.

Note:- 1. Each period will be 50 minutes.

2. Each session will be of 16 weeks.

3. Effective teaching will be at least 12.5 weeks.

## 6.1 COMPUTER NETWORKS

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### RATIONALE

The future of computer technology is in computer networks. Global connectivity can be achieved through computer networks. A diploma holder in computer engineering should therefore understand the function of networks. Knowledge about hardware and software requirements of networks is essential.

### DETAILED CONTENTS

1. Networks Basics ( 8Periods)
  - Concept of network
  - Models of network computing
  - Networking models
  - Peer-to –peer Network
  - Server Client Network
  - LAN, MAN and WAN
  - Network Services
  - Topologies
  - Switching Techniques
  
2. OSI Model (10 Periods)
  - Standards
  - OSI Reference Model
  - OSI Physical layer concepts
  - OSI Data-link layer concepts
  - OSI Networks layer concepts
  - OSI Transport layer concepts
  - OSI Session layer concepts
  - OSI presentation layer concepts
  - OSI Application layer concepts
  
3. Introduction to TCP/IP (12 Periods)
  - Concept of physical and logical addressing
  - Different classes of IP addressing, special IP address
  - Sub netting and super netting
  - Loop back concept
  - IPV4 and IPV6 packet Format
  - Configuring IPV4 and IPV
  
4. Network Architecture (10 Periods)
  - ARC net specifications
  - Ethernet Specification and Standardization:

10 Mbps (Traditional Ethernet), 10 Mbps (Fast Ethernet) and 1000 Mbps (Gigabit Ethernet), Introduction to Media Connectivity (Leased lines, ISDN, PSTN, RF, VSAT, Optical and IPLC)

5. Network Connectivity (8 Periods)

- Network connectivity Devices
- NICs
- Hubs
- Repeaters
- Multiplexers
- Modems
- Routers and Protocols,
- Firewall
- ATM
- VOIP and Net-to-Phone Telephony,
- Laws and Protocols

6. Network Trouble Shooting Techniques (10 Periods)

- Trouble Shooting process
- Trouble Shooting Tools: PING, IPCONFIG, IFCONFIG, NETSTAT, TRACEROUT, Wireshark/ Dsniffer/ Pcop
- Hauffman codes
- Cryptography

7. Wireless Networking (6 Periods)

Basics of Wireless: Wireless MAN, Networking, Wireless LAN, Wi-Fi, Wi-Max (Broad-band Wireless) and Blue-Tooth technology.

**LIST OF PRACTICALS**

1. Recognize the physical topology and cabling (coaxial, OFC, UTP, STP) of a network.
2. Recognition and use of various types of connectors RJ-45, RJ-11, BNC and SCST
3. Recognition of network devices (Switches, Hub, Routers of access points for Wi-Fi )
4. Making of cross cable and straight cable
5. Install and configure a network interface card in a workstation.
6. Identify the IP address of a workstation and the class of the address and configure the IP Address on a workstation
7. Managing user accounts in windows or LINUX
8. Study and Demonstration of sub netting of IP address
9. Connectivity troubleshooting using PING, IPCONFIG, IFCONFIG
10. Installation of Network Operating System(NOS)
11. Visit to nearby industry for latest networking techniques

**Required Software**

- Windows Server/Linux Server