COURSE NAME : ELECTRICAL ENGINEERING GROUP

COURSE CODE : EE/EP

SEMESTER : FIFTH

SUBJECT TITLE : ILLUMINATION ENGINEERING (ELECTIVE-I)

SUBJECT CODE : 9090

Teaching and Examination Scheme:

Teaching Scheme			Examination Scheme						
TH	TU	PR	PAPER HRS	TH	TEST	PR	OR	TW	TOTAL
03	--	02	03	80	20	--	25#	25@	150

Rationale:

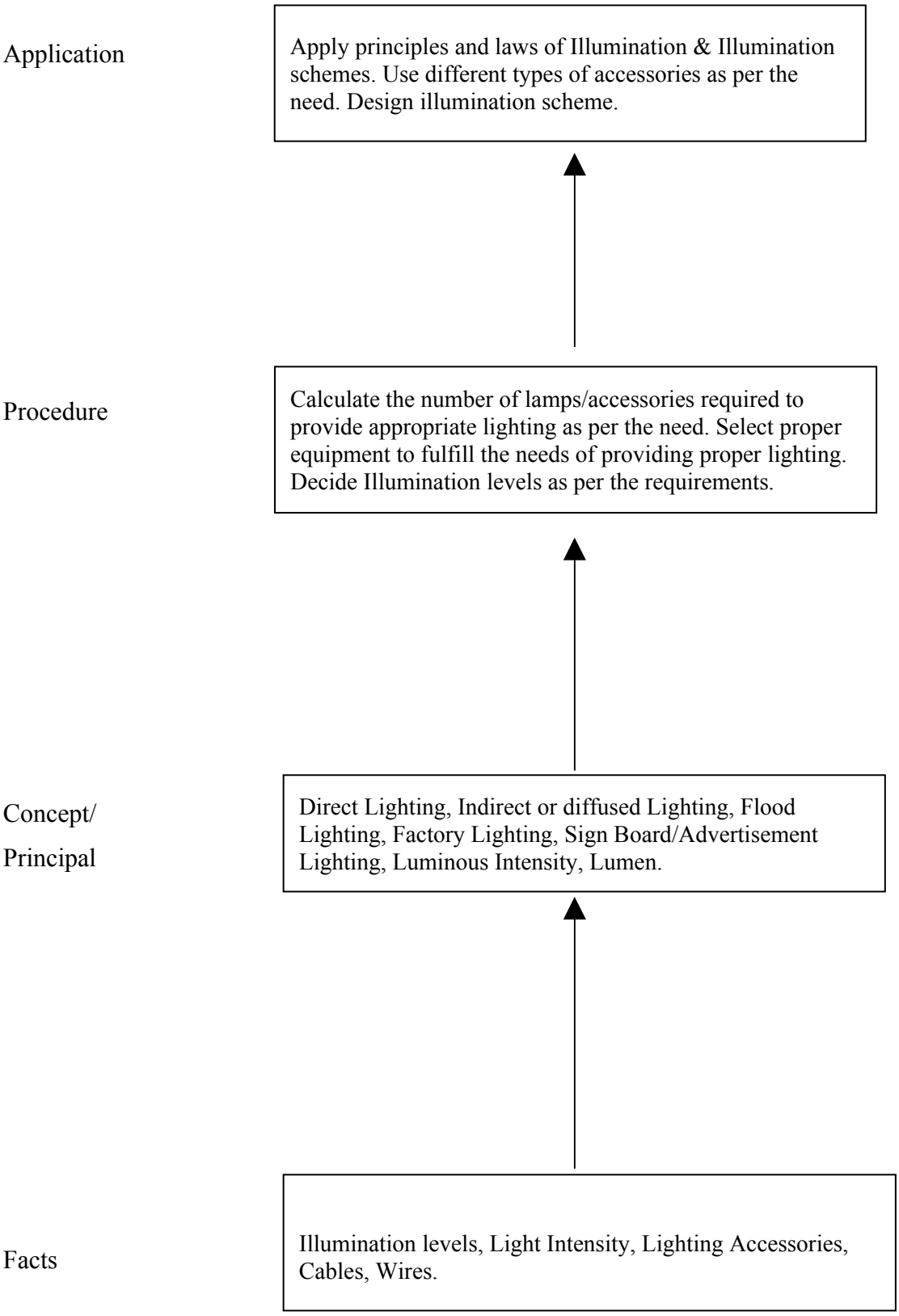
This subject is intended to teach the students various aspects of Illumination scheme. Student will be in a position to apply principles and laws of Illumination & Illumination schemes. Students also have the knowledge of various types of lamps lighting accessories & control circuits. This will also enable them to use knowledge for preparing an Illumination scheme, requirement of the circuits, develop the skill of designing illumination scheme for specific applications. He/She will become aware of his role in adapting new changes in Illumination scheme necessitated due to technical innovations brought out by R & D in Illumination technology. This is a Technology subject.

Objectives:

The student will be able to:

1. Measure the level of Illumination.
2. Differentiate between the various types of lamps.
3. List of various lighting accessories of components.
4. Design a control circuit for Illumination.
5. Design Illumination schemes for various applications in residential, commercial & industrial Locations.
6. Execute Illumination scheme for residential, commercial & industrial locations.

Learning Structure:



Contents: Theory

Chapter	Name of the Topic	Hours	Marks
01	**Fundamentals of Illumination** 1.1 Illumination Terminology 1.2 Laws of Illumination 1.3 Featuring of good Illumination scheme 1.4 Advantages of good Illumination scheme 1.5 Measurement of level of Illumination	06	08
02	**Lamps & Lighting Accessories** 2.1 Types of lamps: ARC lamps, HPMV lamps, Sodium Lamps, CFL Lamps, Metal halides, LED lamps 2.2 Neon Sign Tubes. 2.3 Neon Lamps. 2.4 Halogen Lamps. 2.5 Special purpose Lamp. 2.6 Lighting accessories.	10	16
03	**Illumination Control & Control Circuits** 3.1 Purpose of lighting control 3.2 Dimmer Transformer & their types 3.3 Electronic Dimmer 3.4 Enhancing Lighting control. 3.5 Control circuits for lamps (specify)	06	12
04	**Illumination for Interior Applications** 4.1 Standard for various situations of Interior Illumination 4.2 Design Techniques 4.3 Design considerations for Interior location of Residential, Commercial, Industrial premises 4.4 Design Illumination scheme for different Interior locations of Residential, Commercial, Industrial unit.	10	16
05	**Illumination for Outdoor Applications** 5.1 Factory Lighting 5.2 Street Lighting 5.3 Flood Lighting 5.4 Railway Lighting 5.5 Lighting for Advertisement/Hoardings 5.6 Sports Lighting	10	16
06	**Lighting for Special Applications** 6.1 Agriculture & Horticulture 6.2 Health Care Centers / Hospitals 6.3 Decorating Purposes 6.4 Stage Lighting 6.5 Aquariums & Shipyards	06	12
	Total	**48**	**80**

Practical:

Skill to be developed:

Intellectual Skills**:**

1. Apply different Designing Skills.
2. Select proper equipment.

Motor Skills**:**

1. Measurement of Illumination.
2. Drawing skills.

List of Practicals:

1. To Measure Illumination by luxmeter.
2. Study the various lamps available in the market & collect the technical information.
3. Visit to nearby lamp manufacturing industry.
4. Prepare a report of different luminaries available in the market & collect the technical data (Visit local market / Use internet for data collection).
5. Study the different lighting accessories required for varies types of lamps.
6. Design an Illumination scheme for a garden of medium size.
7. Design an Illumination scheme for a conference room of medium size.
8. Design an Illumination scheme for a workshop for fine work of medium size.
9. Design an Illumination scheme for a medium size Hotel / Hospital /Shopping complex.

Learning Resources:

1. Books:

Sr. No.	Author	Name of Book	Publisher & Address
1.	Jack L. Lindsey	Applied Illumination Engineering	The Fairmont Press Inc.
2.	R. H. Simons, Robert Bean	Lighting Engineering: Applied Calculations	Architectural Press (ISBN 0750650516)
3.	Casimer M Decusatis	Handbook of Applied Photometry	Springer (ISBN 1563964163)

2. Video Cassettes/ CDs

3. IS/International Codes : IS 2418, 9974, 9900, 2218, 5077, 4012, 4013, 1885, 1947, 4347, 6665, 3287, 1777, 3646, 2672, 10894, 1944, 10322, 2140