

eSET Curriculum Guide Lighting & Electrics

The following guide broadly outlines the elements contained within the eSET Lighting & Electrics on-line examination.

The test covers twenty content areas.

1. eSET Lexicon for Lighting and Electrics. One third of the test will be drawn from the lexicon.
 - Utilize terminology drawn from the lexicon and understand variations/synonyms and regionalisms.
 - Participants are strongly encouraged to download the eSET App from iTunes (iPhone, iPad) or Google Play (Android)

2. Lighting Instruments
 - Identify lighting instruments visually
 - Identify lighting instruments by function and characteristic features.
 - These include Ellipsoidal Reflector Spotlights, Fresnels, PAR's and multi-parameter fixtures (intelligent lights).
 - Understand synonyms for lighting instruments
 - Identify accessories typically used with each type

3. Lamps
 - Visually identify lamps by design, description and function.
 - The lamps will be commonly used in the fixtures described in #2

4. Lighting Focus and Beam Distribution
 - Identify elements of the light beam including but not limited to: field and beam angles, focus, hot spot, bench focus, edge.

5. Accessories
 - Identify accessories related to fixtures as well as ancillary equipment related to the process of hanging, circuiting and focusing light in a variety of physical lighting positions.

6. Communication Protocols, Guidelines and Tools
 - Identify, utilize and understand varied data communication methods Including Digital Multiplex (DMX), Ethernet and related protocols
 - Identify devices commonly used in data communication
 - Identify and describe common practices associated with data communication Identify guidelines and terminology associated with data communication.

7. Electrical Theory

- Define watts, amps and volts
- Utilize computational methods including, but not limited to, the West Virginia Formula.
- Be able to determine watts, amps and volts using common formulas.

8. Electrical Codes and Best Practice

- Understand safe usage and standard procedures.
- Visual ID of wire by color, size/gauge and application.
- Familiarity with electrical codes drawn from the National Fire Protection Association.
- Understand best practice within the theatrical environment in regard to cable management, power connection procedures and general safety

9. Wiring and Connectors

- Visual identification of types of stage cable based on wire gauge.
- Visual identification of common connectors (Edison, Twist Lock, Stage Pin (2 P&G), Single Pole Connectors (Cam-lok)),
- Multi-cable and its individual components
- Procedures for wiring plugs and connectors
- Connection sequence and cable management.
- Understanding power distribution and common equipment such as power distros, company switches, drop boxes, raceways, floor pockets, etc.

10. Personal Safety

- Understand, identify and implement best practices and procedures related to personal safety and demonstrate an awareness of the PPE, Life Safety Code and other mandated procedures and guidelines.
- Understand the names and functions of organizations such as ANSI, OSHA and NFPA.
- Fall Arrest, climbing, ladder usage practices.

11. Lighting Directions and Basic Lighting Design Concepts

- Identify lighting directions (up, down, side, back, front) as well as the purposes/outcomes of each.

12. Jobs

- Understand and identify the hierarchy and job descriptions related to the live entertainment environment as related to lighting and electrics.

13. Intelligent Lighting

- Understand common fixture types and typical parameters
- Understand concepts related to fixture addressing, DMX, its related terminology and communication potentials including physical distances, fixture counts and common troubleshooting.
- Understand various light sources including arc, incandescent and LED.

14. Lighting Plots and Paperwork

- Read a light plot and identify fixtures by drafting shape and markings, dimmer and channel information, gel, focus, etc.
- Lighting paperwork based on function (dimmer hook-up, channel hook-up, magic sheet.)

15. Hanging a Plot

- Identify accepted procedures and tools used in hanging a plot.
- Understand related terminology, equipment/accessories

16. Reading a Tape Measure

- Identify standard units of measurement (feet, inches, fractional measurements.)

17. Stage Positions and Lighting Positions

- Identify basic stage positions (C, DC, UL, etc.)
- Traditional lighting positions
- Common electrical distribution associated with those positions.

18. Lightboard Programming and Terminology

- Understand terms related to patching and channel organization (groups, submasters, etc.)
- Understand DMX requirements related to intelligent lighting.

19. Color Theory and Color Media

- Identify terms related to color media, color mixing, and primary and secondary colors of light.

20. Knots

- Visually identify commonly used knots.

Reference Materials

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eSET Lexicon. App available for download from iTunes and Google Play

NFPA 70: National Electrical Code (NEC), 2014 Edition.

Occupational Safety and Health Administration: OSHA 10/General Entertainment Safety Training

Technical Theatre Textbooks.

Backstage Handbook: An Illustrated Almanac of Technical Information / Edition 3
by Paul Charter

ISBN-13; 2900911747392

Publisher: Broadway Press

Publication date: 11/01/1994

USITT RP-2, Recommended Practice for Theatrical Lighting Design Graphics -
(2006). http://www.dolphin.upenn.edu/pacshop/RP-2_2006.pdf