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

*Lighting & Electrics*

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

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

Technical Theatre Textbooks.

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