

New York City College of Technology
Entertainment Technology Department
ENT 1103 Electricity for Live Entertainment
Professor: Miguel Valderrama

Power Distribution Project

“The Power of Power distribution”

Objective:

To help students become familiarized with standard hands on Power Distribution Practices. Also, I pretend to show how much room is in the system to allow changes in its components. Those changes are all related to electrical capacity. This flexibility becomes critical when a component needs to be chosen from the market. Also an evaluation of the system's power carrying capacity will demonstrate students how safe practices need to be followed in order to achieve correct technical operational standards.

Note: This project will be assign following a lecture about **Power Distribution Systems** that are used in **live Entertainment Productions**. Videos of Real life examples prepare by the professor will be presented to the class for further analysis and posted on the Open Lab site. The preparation of the videos will be another part of the project to do before the activity can start functioning. Fortunately, inside the Department of Entertainment Technology there's a video department with which I have done many projects in the past semesters. A proposal of the video to the video department will be developed trying to keep the videos “low profile” to save precious time. Taking the class to where the practices are been carried it is not contemplated at the moment because the short time assigned to the class (50 min) doesn't allow it.

Description:

For this project you will be assigned to work within a team with three other students. Each team will work in a particular example of different power distribution systems used in live entertainment. The students are assigned to the teams randomly using the numbers on the attendance sheet.

The examples (topics) are:

- 1. Team 1: Music**, Celebrate Brooklyn Fest (Prospect Park. Brooklyn)
- 2. Team 2: Fashion**, NYC Fashion Week (Eyebeam Chelsea Manhattan)
- 3. Team 3: Film and TV**, Steiner Studios (Brooklyn Navy yard)
- 4. Team 4: Opera**, Metropolitan Opera NYC (Manhattan)

Following the selection, members of the same team get together to discuss and propose a laid out (diagram) of the system and its different components. This diagram should show the correct connecting and placement order within the power distribution chain. This will be done during the last 20 minutes of the class.

These are the components that every system should have at least:

- Power supply and Power Distribution Unit
- Conductors and connectors
- Current and Voltage Control and Adjustment Devices
- Output Devices (what we are plugging into the system)

Outside class, the teams will sketch their system's diagram using Excel, Google sketch up or any other basic graphic program. Every component within the diagram should have a suggested device (an actual product that can be easily finding online) as an alternative for the one showed by the professor during class and on the videos. Once the diagrams are ready they should be post on the **Open Lab** site of the class for other team's observation and analysis, this represents part of the report that it will be due for the class following the lecture.

Your role within your Team:

Each team member is required to present a substitution device; an alternative that they can find online in the market for the particular component assigned. Student's judgment reasons will be evaluated. I am specially looking for technical and logistical reasons, although price can also be consider as a decision maker. Only knowing what your output is going to be you can determine if you propose device is appropriate for the task. Consequently, communication with the other components is key. Open Lab site will be set so that you can check your proposals online and be aware of the effectiveness of your suggestions.

Some technical reason to look for when you shop online for your devices are:

- Power supply and PD (Power Distribution Unit), Power capacity and versatility
- Conductors, Gauge, cable capacity, cable impedance and connector types
- Control and adjustment, Device type and control capacity
- Output, Device type, Lights, speakers, projectors, LCD screens, etc, power consumption rates

Students need to use online sources that offer tech specifications of the devices, a Link to those specifications should be post on Open Lab as well. Make sure to include Brand name and model for all devices proposed.

The following are some the features of the components that you should look for when you are shopping for devices:

For example, if the topic assigned to the team is **Music, Celebrate Brooklyn Festival** and the student decided to choose to work on Conductors, he or she will propose the type of cables (conductors) that will connect all the devices within the system, the type of connectors used with the different devices, the technical specifications of the cables and the links to where all this information is coming from. Ask yourself: are those cables rated for the job? Can they safely carry the amount of current that will be needed to power all the outputs?

Delivering the Project's Report

Every team will produce a report that will be post on the Open Lab site of the class. The report will be a PDF file attached to the Team's project link. This report must contain at least the following:

- Team's topic assigned and names of the members
- Graphic Laid Out of the system assigned
- Team member responsibilities and product proposals
- The proposals should have a link to the web site providing the technical information

Presenting the team's project

Every team will also present their system to the other teams at the class following the lecture. Teams will introduce their proposed system using the graphics and the information on the report from **Open Lab**. On this presentation the system should be clearly laid out and all the components should be explained in detail by the corresponding members. During the presentation the team members should made emphasis on what motivate them to choose a particular device basing always their reasons on the device's technical capabilities. Questions from the other team's members are encouraged.

Post Evaluation

A quiz will be given on the next class following the presentations. The quiz will ask students to sketch a laid out of one of the systems and clearly identify the components of it. The type of system the student will be working on will be randomly assigned out of the four standard systems that were cover on the presentations. No because a student was member on a team covering a particular example it means he or she will be quiz on that system. While the lecture and the presentations are being held taking notes is extremely encourage.

Grade Composition	
Report (Group)	50%
Presentation (Group)	25%
Quiz (individual)	25%