



**COURSE OUTLINE**

<b>THR152</b>	<b>Lighting Technology</b>			<b>3</b>
<b>Course Number</b>	<b>Course Title</b>			<b>Credits</b>
<b>2</b>	<b>2</b>	<b>0</b>	<b>0</b>	<b>15 week</b>
Class or Lecture Hours	Laboratory or Work Hours	Clinical or Studio Hours	Practicum, Co-op, Internship	Course Length (15 week, 10 week)

**Performance on an Examination/Demonstration**  
(Placement Score (if applicable); minimum CLEP score)

**Alternate Delivery Methods**  
(Online, Telecourse [give title of videos])

**Required Materials:**

Gillette, Michael, J., [Designing with Light: An Introduction to Stage Lighting](#), Mayfield Publishing Company, October 1997.  
Horizon by Rosco laboratories, Lighting Control Software, free download  
Color Media Samples, Rosco, Lee Filter and GAM

**Catalog Description:**

Introduction to stage lighting and to the aesthetics of scenic lighting as a visual art. Hanging, alignment, focusing, maintenance and operation of various types of stage lighting fixtures.  
*Students will be required to work as a lighting technician at approved venues.*

**Prerequisites:**  
EET102

**Corequisite:**

**Last Revised:** Spring 2019

**Course Coordinator:** **Jody P. Gazenbeek-Person (after Robert Terrano), ET118**  
E-mail: [gazenbej@mccc.edu](mailto:gazenbej@mccc.edu)

**Students with Disabilities**

Any student in this class who has special needs because of a disability is entitled to receive accommodations. Eligible students at Mercer County Community College are assured services under the Americans with Disabilities Act and Section 504 of the Rehabilitation Act of 1973.

If you believe you are eligible for services, please contact Arlene Stinson, the Director of Academic Support Services. Ms. Stinson's office is LB221, and she can be reached at (609) 570-3525.

## **Academic Integrity**

As per the student handbook, “A student will be guilty of violating academic integrity if he/she (a) knowingly represents the work of others as his/her own, (b) uses or obtains unauthorized assistance in the execution of academic work, or (c) gives fraudulent assistance to another student.” Students should read the Academic Integrity policy in the MCCC Rights and Responsibilities Student Handbook. ***Academic Dishonesty will result in failure of this course.***

## **Available Resources:**

### **Books**

[Stage Lighting Revealed: A Design and Execution Handbook](#)

**ISBN:** 1558702903

**Author:** Glen Cunningham

**Publisher:** F & W Publications, Incorporated

**Date Published:** March 1993

[Theatre Backstage from A to Z](#)

**ISBN:** 0295977175

**Author:** Warren C. Lounsbury, Norman C. Boulanger

**Publisher:** University of Washington Press

**Date Published:** January 1999

[The ABC of Stage Lighting](#)

**ISBN:** 0896761193

**Author:** Francis Reid

**Publisher:** Quite Specific Media Group, Limited

**Date Published:** September 1992

[Discovering Stage Lighting](#)

**ISBN:** 0240515455

**Author:** Francis Reid

**Publisher:** Butterworth-Heinemann

**Date Published:** December 1998

[Lighting the Stage: A Lighting Designer's Experiences](#)

**ISBN:** 0240513754

**Author:** Francis Reid

**Publisher:** Butterworth-Heinemann

**Date Published:** July 1995

**Format:** Trade Paper

[Scene Design and Stage Lighting](#)

**ISBN:** 0155016202

**Author:** W. Oren Parker, R. Craig Wolf

**Publisher:** Harcourt Brace College Publishers

**Date Published:** February 1996

[Light on the Subject](#)

**ISBN:** 0879101261

**Author:** David Hays, Designed by Peter Brook

**Publisher:** Limelight

**Date Published:** November 1989

[The Stage Lighting Handbook](#)

**ISBN:** 0878300643

**Author:** Francis Reid

**Publisher:** Routledge

**Date Published:** October 1996

[Stage Lighting Design: The Art, the Craft, the Life](#)

**ISBN:** 0896761398

**Author:** Richard Pilbrow

**Publisher:** Quite Specific Media

**Date Published:** October 1997

[Concert Lighting: Techniques, Art and Business](#)

**ISBN:** 0240802934

**Author:** James L. Moody

**Publisher:** Butterworth-Heinemann

**Date Published:** November 1997

[The Lighting Art: The Aesthetics of Stage Lighting Design](#)

**ISBN:** 0135010810

**Author:** Richard H. Palmer

**Publisher:** Prentice Hall

**Date Published:** August 1993

[Effects for the Theatre](#)

**ISBN:** 0896761363

**Author:** Graham Walne, Joe Aveline

**Publisher:** Quite Specific Media Group

**Date Published:** June 1995

[Lighting and Sound](#)

**ISBN:** 071482514X

**Author:** Neil Fraser

**Publisher:** Chronicle Books

**Date Published:** August 1995

[Concert Sound and Lighting Systems](#)

**ISBN:** 024080192X

**Author:** John Vasey

**Publisher:** Butterworth-Heinemann

**Date Published:** February 1994

[Theater Technology](#)

**ISBN:** 0300067666

**Author:** George C. Izenour

**Publisher:** Yale University Press

**Date Published:** July 1999

Stage Lighting for Theatre Designers

**ISBN:** 0435086855

**Author:** Nigel H. Morgan

**Publisher:** Heinemann

**Date Published:** December 1997

[Lighting and the Design Idea](#)

**ISBN:** 0155020692

**Author:** Linda Essig

**Publisher:** Harcourt Brace & Company

**Date Published:** April

1998 [Stage Lighting](#)

[Controls](#) **ISBN:**

0240514769

**Author:** Uif Sandstrom

**Publisher:** Butterworth-Heinemann

**Date Published:** November 1997

[Easy Stage Lighting](#)

**ISBN:** 0834194341

**Author:** Tim Freeman

**Publisher:** Lillenas Publishing Company

**Date Published:** January 1996

[Designing with Light : An Introduction to Stage Lighting](#)

**ISBN:** 1559345276

**Author:** J. Michael Gillette

**Publisher:** Mayfield Publishing Company

**Date Published:** October 1997

[A Practical Guide to Stage Lighting](#)

**ISBN:** 0240803531

**Author:** Steven Louis Shelley

**Publisher:** Butterworth-Heinemann

**Date Published:** March 1999

**Magazines:**

**Lighting Dimensions Magazine** is the leading international trade magazine for lighting professionals targeting designers and specifiers of entertainment, architectural and commercial lighting. Its editorial reports on the latest technologies and applications for theatre, film, television, clubs, concerts and tours, theme parks, industrial and architectural lighting projects.

**Websites**

Entertainment Design on-line <http://www.entertainmentdesignmag.com/>

Lighting Dimensions Online <http://www.lightingdimensions.com/>

Stage Lighting Links <http://www.people.virginia.edu/~rlk3p/desource/links/LinkList.html>

***Upon Successful completion of this course, the student will be able to:***

1. Demonstrate conceptual and working knowledge of the basic principles, practices and concepts of lighting technology through classroom discussion, written assignments, and lighting laboratory exercises, and use appropriate technical terminology in articulating these concepts;
2. Demonstrate conceptual and working knowledge of the basic principles of light, basic electricity and color theory through classroom discussion, written assignments, and audio laboratory exercises;
3. Proficiently operate a variety of lighting control consoles.
4. Hang, align, focus, maintain and operate various types of stage lighting fixtures.
5. Read a lighting plot to hang a show.
6. Set up a dimmer patch and moving light patch.
7. Create lighting cues on computer based lighting desk
8. Work on teams, teach others, serve customers, negotiate and work well with people from culturally diverse backgrounds.

**MCCC Core Skills**

- **Goal A. Written and Oral Communication in English.** Students will communicate effectively in speech and writing, and demonstrate proficiency in reading.
- **Goal B. Critical Thinking and Problem-solving.** Students will use critical thinking and problem solving skills in analyzing information.
- **Goal D. Information Literacy.** Students will recognize when information is needed and have the knowledge and skills to locate, evaluate, and effectively use information for college level work.
- **Goal E. Computer Literacy.** Students will use computers to access, analyze or present information, solve problems, and communicate with others.
- **Goal F. Collaboration and Cooperation.** Students will develop the interpersonal skills required for effective performance in group situations.
- **Goal G. Intra-Cultural and Inter-Cultural Responsibility.** Students will demonstrate an awareness of the responsibilities of intelligent citizenship in a diverse and pluralistic society, and will demonstrate cultural, global, and environmental awareness.

**Unit I: An Introduction to Lighting Design**

*The Student will be able to:*

1. Define and explain in their own words common terms in the stage lighting business such as; dimmer, control board, cable, instruments, color media, etc. (CG1)
2. Explain the relationship between light and perception and its impact on lighting design (CG1&2)
3. Define, explain and analyze the design characteristics of light. (CG2)
4. Define the term lighting design and list and explain the functions of stage lighting. (CG1)
5. Explain the definition of the lighting production team (CG1)
6. Describe the organization and responsibilities of the members of the lighting production. (CG1)

## **Unit II: Basic Electricity for Lighting Design**

*The student will be able to:*

1. Explain in his/her words the definition of electricity. (CG2)
2. Explain and draw the basic structure of the atom. (CG2)
3. Discuss how electricity flows in a circuit. (CG2)
4. Define basic electrical terms such as potential, voltage, current and wattage. (CG2)
5. Differentiate between alternating current and direct current. (CG2)
6. Use a Volt-Ohm Meter.(CG1&2)
7. Calculate Voltage, Current, and Power (GB, CG2)
8. Analyze simple AC and DC Circuits (GB, CG2)
9. Describe the differences between series and parallel circuits. (GB, CG2)
10. Define and explain the differences between two wire single phase AC, three wire single phase ac and four wire three phase AC. (CG2)
11. Calculate lighting loads for theatrical productions. (CG2)
12. List current capacity for different gauges of wire and calculate minimum wire sizes for lighting distribution given the power requirements of the lighting instruments used. (CG1&2)

## **Unit III: Lighting Instruments and their Components**

*The student will be able to:*

1. List, describe and analyze the three primary types of lens systems used for various lighting instruments. (CG1)
2. List and explain the characteristics of lenses. (CG1)
3. List and describe that various types of lamps used in stage lighting instruments. (CG1)
4. List, describe and explain the components of the ellipsoidal spotlight, feshel spotlight, beam projector, followspot, PAR can, striplight, cyc light, etc. (CG1)
5. Analyze the differences between various lighting instruments and evaluate their effectiveness for different situations. (GB, CG1&2)
6. Identify the various types of rigging systems used to hold lighting instruments. (CG1)
7. Hang and focus lighting instruments. (CG1&3)

## **Unit IV: Electrical Distribution, Dimming and Control**

*1. The student will be able to:*

2. List, describe and evaluate for use the various types of electrical connectors used in stage lighting such as Edison, twistlock, grounded pin, etc. (CG1)
3. Make a stage lighting extension cord that meets all specifications. (CG1)
4. Identify and list the current ratings for different wire gauges. (CG1)
5. Calculate the correct gauge wire to use given a specific lighting load. (CG1)
6. Describe the different types of circuiting used to wire lighting instruments to the dimmers. (CG1)
7. Describe the different types of dimmers. (CG1)
8. Describe and compare and contrast the different types of dimmer control such as analog, digital, AMX, DMX , etc. (CG1)
9. Explain multiplexing and gating. (GB, CG1)
10. Describe control consoles and the compare and contrast the categories they fall into. (CG1,CG3)
11. Use a fully computerized control console and a manual control console. (CG1&3)
12. Draw a lighting system electrical flow diagram. (GB,D&E, CG1&2)

## **Unit V: The Lighting Plot, Dimmer Patch and Cue Building**

*The student will be able to:*

- Read a lighting plot. (CG1&4)
- Hang, gel and focus a show using the lighting plot (CG1,2,4&5)
- Patch the lighting board using information from the lighting plot.(GB, CG1, 3&6)
- Write cues based on the lighting plot and the lighting designer's design. (GB,D&E, CG1,3,6&7)

## **Unit VI: Color Theory and its Application to Lighting Design**

*The student will be able to:*

1. Paraphrase the definition of color. (CG2)
2. Describe the terms used to describe color attributes and compare and contrast the differences in the meaning of these terms. (CG2)
3. Explain how we see color. (CG2)
4. Explain the terms used for color mixing and compare and contrast the differences in meaning of these terms. (CG2)
5. Analyze the meaning of color and evaluate the general emotional impact of each of the colors in the rainbow. (GB, CG2)
6. Compare and contrast the difference between the additive color mixing and subtractive color mixing in light and identify the three primary colors for each. (CG2)
7. Write a paper that integrates the basics of color theory to its practical application of colored light the theater. (GA,CG2)
8. Compare and contrast the different types of color media used in lighting design. (CG2)

## **Unit VII: Projections, Practicals, Effects and Advanced Technology Instruments**

*The student will be able to:*

1. Describe the advantages and disadvantages of using projection. (CG2)
2. List the different types of projectors and describe the operation of each. (CG2)
3. Create a slide presentation for use on a computer. (CG2)
4. Use gobo for a dramatic presentation. (CG2)
5. Describe the most common types of practical use in lighting design. (CG2)
6. Design and build a simple practical. (CG2)
7. Describe the various types of advanced technology instruments used in theatre, concert, club and amusement venues. (CG2)
8. Create a lighting design that uses advanced technology instruments. (GB, D&E, CG2,3,6&7)
9. Program an advanced technology instrument using one of the computerized control consoles. (GB, D&E, CG2,3,6&7)

## **Unit X: The Practicum**

*The student will be able to:*

- Maintain and keep in good working order a variety of lighting equipment. (CG1,2&4)
- Hang, focus and gel a lighting plot in an assigned venue. (GB,D&E, CG1,2, 4&5)
- Work on teams, teach others, serve customers, negotiate and work well with people from culturally diverse backgrounds. (GF&G, CG1&8)
- Work collaboratively with the creative team. (GF&G, CG8)

## **Evaluation of Student Learning.**

Students' achievement of the course objectives will be evaluated through the use of the following tools:

***Students' achievement of the course objectives will be evaluated through the use of the following:***

- Active participation in class.
- A series of Unit tests assessing students' comprehension of basic lighting terminology and practices (CG1&2)
- A series of essays and short papers assessing students' comprehension of basic concepts and practices. (GA&B, CG1&2)
- A practicum where students will hang and focus lights in an approved local venue. (Goals B,F&G; CG 1,2,4,5&8)
- An individual project where students will design lights, given a repertory plot in the studio theatre, using music from a musical, film or concert soundtrack. Students will be graded on concept, lighting plot implementation and execution. (GB; CG1,2,3,4,5,6,&7)

<b>Evaluation Tools</b>	<b>Percentage Of Grade</b>
Unit Tests	20%
Unit essays and papers	20%
Practicum	25%
Final design project	30%
<b>PRACTICUM EVALUATION OF THR152 STUDENTS</b> <b><i>Entertainment Technology Program</i></b>	5%
	100%

Student's Name:			Your Name:		
Company/Org:					
Title:					
Date:					
	Excellent	Very Good	Average	Marginal	Unsatisfactory
Quality of Work	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attitude	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dependability	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Attendance	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Ability to take direction	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Interpersonal Skills	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Work with people of culturally diverse background	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Collaboration with the Design team	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Read a lighting plot	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hang, Focus and Gel	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Instrument Check	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Running Board	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Load-in	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Loud out	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<p>I would rate the student's overall performance as:</p> <p>Excellent    Very Good    Average    Marginal    Unsatisfactory</p> <p><input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/></p> <p>Indicate behaviors which may help and/or hinder this student's advancement:</p>  <p>How well does this student interact with peers and the design team or producer?</p>					