SPRINGFIELD TECHNICAL COMMUNITY COLLEGE

ACADEMIC AFFAIRS

Course Number: LEOT 420 Department: Laser Electro-Optics Technology

Course Title: Wave Optics Semester: Spring Year: 1999

Objectives/Competencies

Course Objective	Competencies
1.To introduce the student to wave theory.	1.To understand what constitutes a light wave. 2.To be able to measure light waves in the lab. 3.To be able to analyze light waves. 4.To understand the temporal and spatial behavior of light waves. 5.To understand how light waves are used in various applications.
2.To introduce the student to the theory of interference.	1.To understand how light waves interfere. 2.To be able to build and test interferometers in the lab. 3.To be able to build and test interferometers using specific software. 4.To understand the temporal and spatial characteristics of interferometers.
3.To introduce the student to the theory of diffraction.	1.To observe diffraction in the lab. 2.To understand the mathematical nature of diffraction.

Course Objective	Competencies
	3. To understand diffraction and related phenomena which impact optical and laser systems. 4. To understand how diffraction gratings work. 5. To be able to analyze and test diffraction gratings in the lab. 6. To be able to analyze and test diffraction gratings using specialized software.
4. To introduce the student to the properties of light and matter.	1. To understand light polarization. 2. To be able to measure polarized light in the lab. 3. To be able to analyze polarization states. 4. To understand the temporal and spatial behavior of polarized light waves. 5. To understand how polarized light waves are used in various applications.
5. To introduce the student to the optics of transformations.	1. To understand holography. 2. To understand optical data processing. 3. To be able to analyze polarization states. 4. To understand the temporal and spatial behavior of polarized light waves in optical data processing setups. 5. To understand how optical data processing is used in various applications.