

# TABLE OF CONTENTS

Licensing

Acknowledgements

Preface

## 1: Basic Properties

- 1.1: Sine Wave
- 1.2: Speed of a Wave
- 1.3: Transverse Waves
- 1.4: Simple Harmonic Motion
- 1.5: Simple Harmonic Motion and Resonance
- 1.6: Longitudinal Waves
- 1.7: Water Waves
- 1.8: Two-Dimensional Waves

## 2: Combining Waves

- 2.1: Adding Two Linear Waves (Superposition)
- 2.2: Interference
- 2.3: Group Velocity
- 2.4: Other Wave Functions
- 2.5: Fourier Analysis and Synthesis

## 3: External Interactions

- 3.10: Diffraction
- 3.1: Mirrors
- 3.2: Collisions with Boundaries
- 3.3: Standing Waves on a String and in a Tube
- 3.4: Refraction
- 3.5: Lenses
- 3.6: Path Difference and Interference
- 3.7: Impedance
- 3.8: Dispersion of Light
- 3.9: Dispersion of Fourier Components

## 4: Applications

- 4.1: Doppler Effect
- 4.2: EM Waves from an Accelerating Charge
- 4.3: Antenna
- 4.4: Electromagnetic Plane Waves
- 4.5: Polarization
- 4.6: Wave Equation
- 4.7: Oscillator Chain
- 4.8: Non-Linear Waves
- 4.9: Solitons

[Index](#)

[Glossary](#)

[Detailed Licensing](#)