

# Contents

Dedication.....	i
Acknowledgement.....	ii
Contents.....	iii
List of tables.....	iv
List of figures.....	v
Abstract (English).....	vi
Abstract (Arabic).....	vii

## Chapter one

<b>Introduction and Basic Concepts.....</b>	<b>1</b>
1.1 Introduction.....	1
1.2 Definition of laser.....	1
1.3 Principle of laser operation.....	2
1.4 Common types of lasers.....	6
1.4.1 Solid-state laser.....	6
1.4.1.1 Ruby laser.....	6
1.4.1.2 Nd:YAG laser.....	6
1.4.1.3 Vibronic lasers.....	8
1.4.2 Gas lasers.....	8
1.4.2.1 Helium-neon laser.....	8
1.4.2.2 Argon and krypton lasers.....	8
1.4.2.3 Carbon dioxide laser.....	9
1.4.2.4 Excimer lasers.....	9
1.4.3 Dye lasers.....	9
1.4.4 Semiconductor lasers.....	10