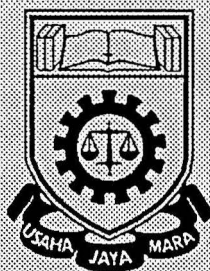


**PROPOSE OF THE LENS SYSTEM AS A PART IN
DEVELOPMENT OF OPTICAL SYSTEM FOR RED
RUBY LASER MATERIAL CUTTING TOOLS.**

This is presented in partial fulfillment for the award of the

Bachelor of Engineering (Hons.)(Electrical)

MARA Institute of Technology



NORAZMI BIN BAKAR A 2545211

94111911

Faculty of Electrical Engineering

MARA Institute of Technology

40450 Shah Alam, Selangor

Malaysia

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Abstract

This project done by doing a case study on propose of the lens system to be implement in the development of optical system for Red Ruby Laser Material Cuttings Tool. The project proposes employing lenses in terms of their types, capabilities and shapes in order to improve the output beam (laser beam). The ultimate aim of the project is to propose the lenses system (obtain by analytical) to be use with Red Ruby Laser Material Cuttings Tool, where Nd-YAG laser was employed in laboratory experiment as a guidance to examine the practical laser beam.

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1.0 INTRODUCTION

The word laser was coined as an acronym, for *Light Amplification by the Stimulated Emission of Radiation*. The word tells that laser light is special light. Ordinary light, from the sun or a light bulb, is emitted spontaneously, when atoms or molecules get rid of excess energy by themselves, without any outside intervention. Stimulated emission is different, because it occurs when an atom or molecule holds onto excess energy until it is "stimulated" to emit it as light.[1]

Laser could be either powerful (hazardous) or less powerful which we use everyday. Manipulation of the beam could bring a new characteristics to the beam which could be used with student laboratory work, information technology, entertainment and security sensor. More powerful lasers could be found in industries. A typical simplified schematic diagram to produce a laser beam by optical cavity is shown in Figure 1.1.[2]

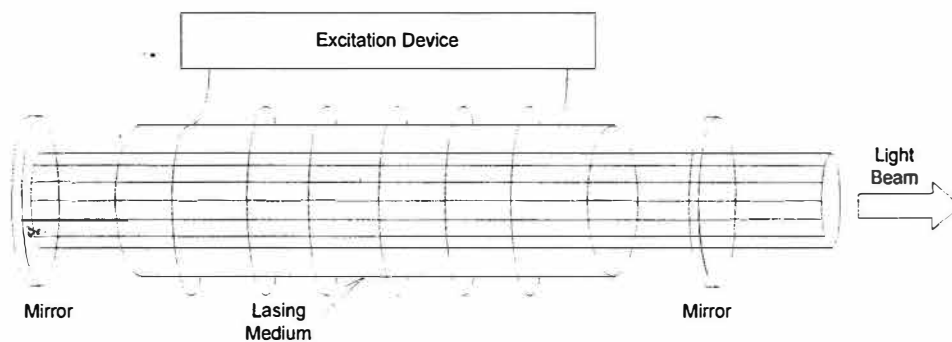


Figure 1.1 : A typical simplified schematic diagram to produce a laser beam.