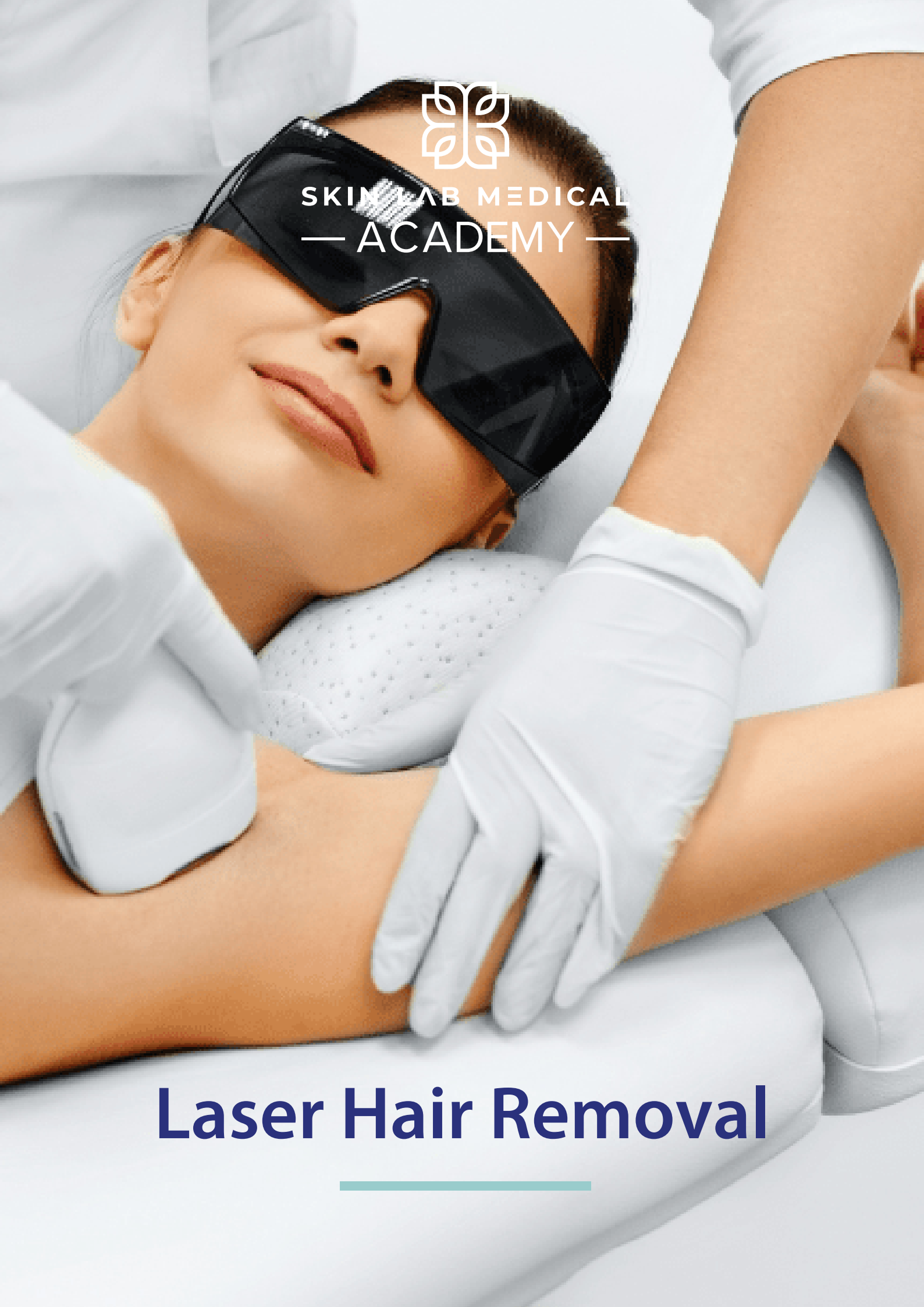



# Laser Hair Removal

# Table Of Contents

Your Name:

# Welcome to your course!

Aim:
To enable student practitioners to have the necessary skills and knowledge (anatomy and physiology, Health and Safety, the Consultation process and the legal requirements) to carry out the procedure in a professional and competent manner to the highest possible standard.

Objective:
That on completion of the course all students/ practitioners will be competent and professional in relation to the procedure and be able to perform at the highest standard to ensure that clients receive the best possible advice and treatment and they will be confident to recommend you and your services to others.

# FOR PROFESSIONALS

More than ever before, people are turning to laser for cosmetic purposes. This is because lasers offer several advantages over traditional surgical procedures, including: ease of application, convenience, safety, price, and minimum downtime. Removal of unwanted hair is the most popular application for the laser.

Laser treatments can be done in conjunction with one another, or with traditional cosmetic procedures to obtain optimal results. Such multi-dimensional approaches to laser treatment are common practice. For instance, we might first treat the deep dermis layer to stimulate new collagen production and effect skin tightening. This treatment can be followed by a laser photo facial applied to the superficial layer of the dermis, and I.P.L. for the epidermis to eliminate brown spots and blemishes on the skin. Fractional laser technology are also gaining popularity to treat wrinkles, skin texture, and effect skin tightening. The combination of these treatments with skin fillers and Botox will produce the best results and allow for the highest level of client satisfaction.

The goal of this course is to fulfill the laser training requirement and obtain necessary competence for you to become professionally trained.

By the end of the course, you should be able to successfully demonstrate competence in:

**A. Theoretical aspects of laser:**

1. Basic theory and laser function.
2. Mechanism and action of laser for hair removal, treating veins, and skin rejuvenation.

**B. Clinical aspects:**

1. Skin classification and patient selection criteria.
2. Safety, efficacy, and dealing with complications.
3. Assessment and identification of the areas to be treated. 4. Client education: pre- and post-treatment instructions.

The information in this course manual contains, to the best of our knowledge, the generally accepted practices for laser operations in the community. However, in view of the ongoing research, new applications and new laser apparatuses that continue emerging frequently, it is our advice that the practitioner regularly educate themselves with the latest information, warnings and precautions concerning the use of lasers. It is also important to closely read and follow the manufacturer's instructions for the specific laser machine you employ.

Great effort has been taken to confirm the accuracy of the information in this syllabus. However, we are not responsible for any omissions or errors nor any consequences resulting from the application of this information. We make no warranty with respect to the currency and accuracy of the content of this manual. The application of this information remains purely the responsibility of the practitioner.

# LASER PHYSICS

Both visible light and the laser cover only a narrow band of the spectrum of electromagnetic radiation. The laser's wavelength ranges between 400– 3000 nm and the frequency ranges between 10–100 Hz. The shorter the wavelength, the higher the frequency, and the higher the energy emitted by the rays. The wavelength of visible light ranges between 400–780 nm.

Frequencies above 10 Hz include the spectrum of ultraviolet rays, X-rays, cosmic and gamma radiation, which are considered ionizing radiation. They are harmful to human tissue because they produce free radicals and can cause mutations. Visible light, infrared light and lasers emit non-ionizing radiation and do not have carcinogenic or mutagenic effects. They result mostly in the emission of heat and can be used to target specific skin structures. Their penetration is limited to just a few millimeters.

**I.P.L. (INTENSE PULSE LIGHT)**

IPL is a high-intensity flush radiation of a wide spectrum of wavelengths ranging between 500 and 1200 nm. Most IPL systems have cut-off filters to remove, undesired waves. The specific range of waves that are appropriate for treatment is chosen in this way. The cut-off range can be in the shortwave range or the long-wave spectrum. The laser, on the other hand, delivers a specific wavelength and is defined as monochromatic.

**LASER**

Monochromatic

Coherent

Collimated (non- divergent)

**IPL**

Broad spectrum

Non-coherent

Divergent

The use of IPL is like the laser with the limitation that it cannot be used on the use on dark or tanned skin. Normally skin type 4 and above.

The word LASER stands for:

**L**IGHT

**A**MPLIFICATION

**S**TIMULATED

**E**MISSION

**R**ADIATION

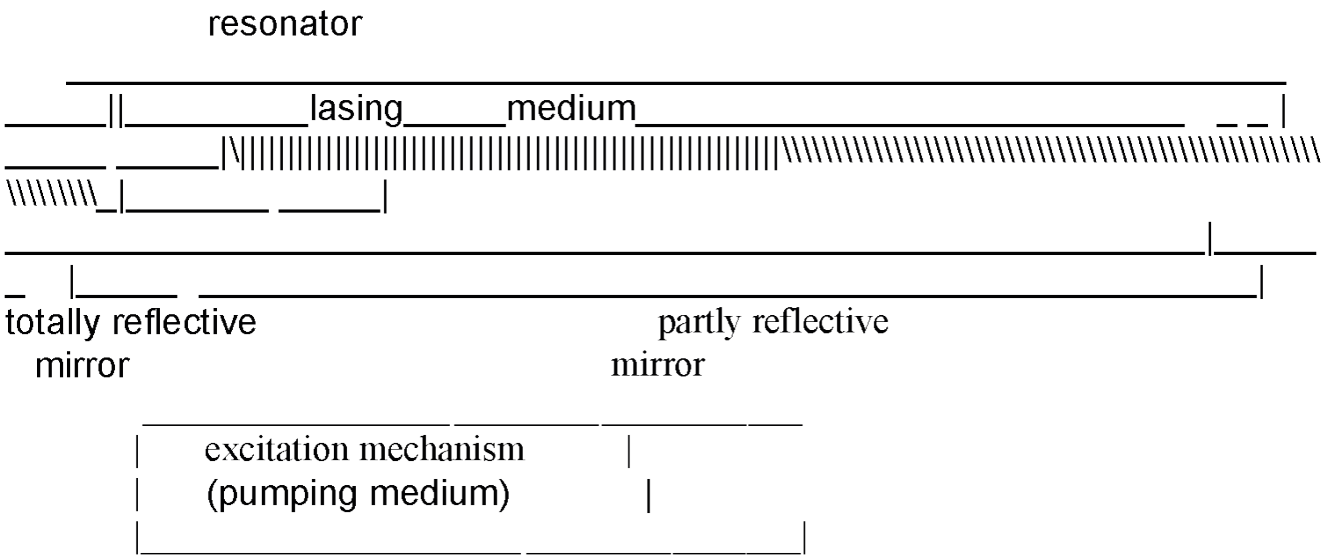
**The basic design of a laser includes the following components:**

— LASING MEDIUM (gas liquid solid semiconductor)

— EXCITATION MECHANISM (power supply, flash lamp, etc.)

— FEEDBACK MECHANISM (mirror)

— OUTPUT COUPLER (semi-transparent mirror)




The resonator contains the lasing medium and the two mirrors. The mirrors are parallel and face each other. The excitation mechanism or pumping medium is the energizing power source or can be a flash lamp. When energy is transferred to the lasing medium, excitation of the atoms occurs. The electrons jump to higher orbits. When they return to their ground state, they emit photons of light. The wavelength or the color of that light depends upon the inversion state of the medium, which is the ratio between the excited & non-excited atoms. In high excitation states, if a photon encounters other atoms in the same excitation state, stimulated emission occurs. That atom will emit photons of the same wavelength and the same phase. The photons reflect back and forth between the mirrors, and a cascade effect occurs that creates emission rays of photons of the same wavelength and the same phase as the rays pass through the semi- reflective mirror to be laser rays.

The laser rays are:

A. Monochromatic — of one wavelength (one color).

B. Coherent — waves are in the same phase focused & high intensity.

C. Collimated — with very little divergence

**LASERS CAN POSE MORE OF A HAZARD THAN ORDINARY LIGHT BECAUSE THEY FOCUS MUCH MORE ENERGY INTO A SMALLER AREA.**

# THE DIFFERENT TYPES OF LASERS

GAS — argon, krypton, xenon, helium, nitrogen
LIQUID — tunable dyes, rhodamine, pulse dye laser
SOLID — ruby, garnet, alexandrite, sapphire, and Nd:YAG (Neodymium: yttrium-aluminum-garnet)
SEMI CONDUCTOR — diode laser

| TYPE | SPECTRUM | WAVELENGTH |
|---|---|---|
| Argon fluoride | UV | 193 nm |
| Krypton | UV | 222 nm |
| chloride Xenon | UV | 308 nm |
| chloride Xenon | UV | 351 nm |
| fluoride Helium | UV | 325 nm |
| cadmium | UV | 337 nm |
| Nitrogen | | |
| Krypton | visible | 476 nm, 528 nm, 647 |
| Argon | visible | nm 488 nm, 514 nm |
| Copper | visible | 510 nm, 578 nm |
| Nd:YAG | visible | 532 nm |
| Helium, Neon | visible | 543 nm, 594 nm, 633 |
| Gold | visible | nm 628 nm |
| Rhodamine | visible | 570 nm ----- 650 nm |
| dye Ruby | visible | 694 nm |
| Alexandrite | visible | 755 nm |
| Nd:YAG | near | 1064 nm |
| Erbium | infrared | 1540 nm |
| Hydrogen | near | 2600 nm, 3000 nm |
| fluoride Carbon | infrared | 9600 nm ----- 10600 |
| dioxide | near | nm |

# APPLICATIONS TRAINING MANUAL

## USING INTENSE PULSED LIGHT (IPL) DEVICE
## LONG-TERM HAIR REDUCTION: A STEP-BY-STEP TREATMENT PROTOCOL

*For Aestheticians, Beauty Therapists, Medical Pros' Providing Cosmetic Treatments*

### MPORTANT ADVICE FOR THE USER:

This Applications Manual provides guidance to assist in practical applications work with intense pulsed light. The information contained herein reflects state of the art technology in this field. The author will assume no liability for errors, which, despite adequate care and attention, cannot be ruled out entirely. The user alone bears full responsibility for actions performed in conjunction with this Applications Manual.

### WARNING:

This detailed training manual is intended for general guidance in the use of the intense pulsed light device for long term epilation and does not constitute "A protocol produced by an expert medical or dental practitioner" as required by the Healthcare Commission for registration of an establishment in England and Wales under the Care Standards Act 2000 and described in the Dept of Health: National Minimum Standards and Regulations.