

# LEC1\ GENERAL LABORATORY FEATURES

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# INTRODUCTION

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- Definition of a laboratory
- A laboratory is a controlled environment equipped with instruments, tools, and materials where scientific experiments, research, analysis, or training are conducted
- Purpose of laboratories in education, research, and diagnostics
- Importance in scientific progress

# PURPOSE OF LABORATORIES IN EDUCATION, RESEARCH, AND DIAGNOSTICS

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- Education: Provide hands-on learning, develop practical skills, and support theoretical knowledge.
- Research: Enable scientific investigation, innovation, and discovery of new knowledge.
- Diagnostics: Support accurate testing, analysis, and identification of medical and scientific problems

# LOCATION & DESIGN

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- Location away from noise and pollution.
- Large building with wide corridors.
- Good ventilation and lighting.



# BASIC FACILITIES

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- Workbenches resistant to chemicals
- Cabinets and shelves for storage
- Water, gas, and electricity supply
- Fume hoods



# TOOLS & EQUIPMENT

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- Microscopes, sensitive balances, centrifuges
- Glassware and consumables
- Analytical and biological instruments



# SAFETY FEATURES

- Fire extinguishers and alarm systems
- First aid kit
- Emergency shower and eye wash
- Safety signs and guidelines



# HYGIENE & CLEANLINESS

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- Safe disposal of chemical and biological waste
- Cleaning and sterilization of tools
- Prohibition of eating and drinking



# PERSONNEL

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- Lab Supervisor
- Technicians
- Students and researchers

# CONCLUSION

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- A laboratory is an integrated system (location - facilities - equipment - safety - personnel)
- Following design and safety standards ensures effective and safe work environment

# REFERENCES

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- •Laboratory Management & Design textbooks
- •WHO & CDC Guidelines