**MINISTRY OF HEALTH OF UKRAINE**
**Danylo Halytsky Lviv National Medical University**

**Department:** ***Drug Technology and Biopharmaceutics***

**Head of the Department:** ***associate professor S.B. Biolus***

# *PROPAEDEUTIC PRACTICAL TRAINING REPORT*

## *on "Drug Technology in Pharmacy"*

Full name of student _____

_____

Faculty: ***pharmaceutical*** Course year **_1_** Group _____

Base of practical training_____

_____

Lviv-20__

Student _____
(full name)

undergoes propaedeutic practical training on “Drug Technology in Pharmacy” on the base _____
(name of pharmacy)
in _____
(city, region)

Period of practical training: from ____._____ to_____._____ 20__

Supervisor of practical training from the Department _____
(post, full name, sign)

Supervisor of practical training from the Pharmacy _____

_____
(post, full name)

Student has arrived ___._____20__ left ____._____20__.

Sign of responsible person _____

Place stamp here

## GENERAL STATEMENTS

According to the academic curriculum, students of the Faculty of Pharmacy should undergo the propaedeutic practical training on "Drug Technology in Pharmacy" in the 1th course year after the end of summer examination period. Extent of practical training is 2 credits (1 week).

During the practical training in pharmacies that compound extemporaneous preparations, students should work for 6 hours daily for 5 working days. Head of the pharmacy appoints the immediate supervisor of the practical training.

Prior to the propaedeutic practical training students must be given the instruction, syllabus, report on the practical training and referral to the practical training from the department. Arriving to the practical training, student must pass safety training and refine the plan of practical training. During the practical training student must strictly comply with internal rules and regulations of the pharmacy.

Practical training report student writes in accordance with schedule of the training and recommendations of supervisors from the university and the pharmacy. Propaedeutic practical training is assessed by 4-point grading scale.

Student who do not meet the requirements of practical training and gets the negative reference about the work or negative mark for the report may be expelled from the university.

**Purpose of the propaedeutic practical training on "Drug Technology in Pharmacy"** is to achieve basic objectives determined by professional education program on speciality "Pharmacy" and serves for forming the content of the propaedeutic practical training.

**Final objectives of the propaedeutic practical training** on "Drug Technology in Pharmacy" are:

- familiarization with some statements of normative documents;
- familiarization with specific statements of normative documents that regulate the formulation and storage of drug products in the pharmacies;
- acquirement with some technological operations for formulating, packaging and labeling of different dosage forms.

**Objectives of the practical training are:**

- familiarization with safety instructions and actual labor rules in pharmacy;
- familiarization with requirements to sanitary conditions of pharmacy and personal hygiene of personnel;
- acquirement with nomenclature of washing and disinfecting products used in pharmacy to provide sanitary and anti-epidemic regime;
- learning of dosing methods and equipment used in pharmacy for dosing of preparations with different physical properties;
- learning of technological operations for preparing different dosage forms (weighing, measuring, dissolving, filtering etc);

- learning of measures for making the aseptic conditions to prepare sterile and aseptic preparations;
- acquirement with types of packing and sealing materials used in pharmacy practice;
- acquirement with types of labels for dispensing the extemporaneous preparations.

As a result of the propaedeutic practical training on "Drug Technology in Pharmacy", student **should be able to:**

- use normative documents and informative literature;
- keep the pharmaceutical and sanitary conditions at the work places;
- dose and pre-pack active ingredients and excipients with different physical and chemical properties;
- work with weight measuring devices and the other labor saving tools; keep them in an appropriate condition;
- dose and pack powders and semi-solid preparations;
- measure and filtrate liquid preparations in accordance with application;
- pack and label for dispensing different extemporaneous preparations.

During the propaedeutic practical training on "Drug Technology in Pharmacy" students write practical training reports, where they must accurately record and describe all types of performed work that is foreseen by syllabus of the practical training. The immediate supervisor from the pharmacy inspects the reports every day and assesses the practical skills and abilities.

**Student is required to note in the practical training report:**

- structure, space and layout of pharmacy premises;
- normative requirements to sanitary and anti-epidemic regime, pharmaceutical order, and personal hygiene of personnel;
- layout and equipment of workplaces in assistant room;
- requirements to the production areas of pharmacy and their cleaning;
- methods for receiving purified water, quality control, storage conditions, and requirements;
- principles and methods of dosing in pharmacy practice; weight measuring devices used in pharmacy practice; construction of prescription and hand scales, weights;
- deviations allowed in the dispensing of drug products;
- pharmacopoeial requirements to the extemporaneous preparations;
- general requirements for the preparing of non-sterile preparations;
- dosing and packaging of solid and liquid preparations, semi-solid preparations for cutaneous application, vaginal and rectal suppositories;
- general requirements for the preparation of sterile formulations; sterilization methods;
- workplace of a pharmacist who prepares extemporaneous preparations; assortment of extemporaneous preparations; equipment for pharmaceutical compounding;

- modern types of containers and packaging materials for different dosage forms; requirements for preparation, washing and drying of pharmacy utensils;
- types of labels and selection of labels for extemporaneous preparations in accordance with administration (basic, additional, preventive).

## CONTENT OF PROPAEDEUTIC PRACTICAL TRAINING ON DRUG TECHNOLOGY IN PHARMACY

Propaedeutic practical training on "Drug Technology in Pharmacy" is performed in pharmacies that compound extemporaneous preparations and at the Department of Drug Technology and Biopharmaceutics (final control).

During the propaedeutic practical training students should familiarize with structure of pharmacy, layout and equipment of workplaces in assistant room; requirements to sanitary and anti-epidemic regime, pharmaceutical order, and personal hygiene of personnel; methods for receiving purified water; rules and types of dosing; weight measuring devices; general requirements for preparing extemporaneous formulations; types of containers and packaging materials for different dosage forms; labels and their selection for labeling the extemporaneous preparations in accordance with administration.

## PLAN OF PROPAEDEUTIC PRACTICAL TRAINING

| № | Topic | Days | Date | Check off | Sign of supervisor |
|---|---|---|---|---|---|
| 1 | Passing the briefing on safety awareness, sanitary measures and pharmaceutical order. General familiarization with production premises in pharmacy. Sanitary and anti-epidemic regime, pharmaceutical order. Production premises of pharmacy, cleaning. Requirements to the premises of pharmacy. Personal hygiene of personnel. Methods for receiving purified water, quality control and storage conditions. Pharmacopoeial requirements to purified water. | 1 | | | |
| 2 | Dosing in pharmacy practice. Weight measuring devices that are used in pharmacy practice. Normative requirements for the deviations allowed in dispensing of extemporaneous preparations | 1 | | | |
| 3 | General requirements for preparing non-sterile extemporaneous preparations. Dosing and packaging of solid and liquid preparations, semi-solid preparations for cutaneous application, vaginal and rectal | 1 | | | |

| | | | | | |
|---|---|---|---|---|---|
| | suppositories. Pharmacopoeial requirements to extemporaneous preparations | | | | |
| 4 | General requirements for preparing sterile extemporaneous preparations. Creation of aseptic conditions. Methods of sterilization. Workplace of pharmacist who compounds intra-pharmacy half products. Nomenclature of intra-pharmacy half products. Labor saving devices used for preparing intra-pharmacy half products | 1 | | | |
| 5 | Modern types of packaging materials and containers for different dosage forms; requirements to the preparation, washing and drying of pharmacy utensils. Types of labels (basic, additional, preventive) and their selection for dispensing the extemporaneous preparations in accordance with administration | 1 | | | |
| | Final control | | | | |
| | **Total** | 5 | | | |

## List of practical skills and abilities that student should get during the propaedeutic practical training and their assessment in point grades

1. To use normative, informative and study literature for solving professional problems.
2. To characterize structural subdivisions of pharmacy, its production premises.
3. To analyze requirements to sanitary conditions of the production premises, preparation, washing and drying of pharmacy utensils.
4. To know requirements to personal hygiene of personnel.
5. To choose methods for receiving purified water, its storage and quality control.
6. To choose suitable prescription and hand scales.
7. To weigh dry active ingredients and excipients.
8. To weigh viscous substances and thick liquids.
9. To use dosing devices and the other labor saving devices for preparing solid preparations.
10. To dose liquid preparations using measuring devices.
11. To calibrate empirical droppers.
12. To use labor saving devices (e.g., burettes, apparatus for preparing water extracts etc) for preparing liquid preparations.
13. To perform basic technological operations for preparing solid preparations (grinding, mixing, sieving, packaging).

14. To perform basic technological operations for preparing liquid preparations (dissolution, filtration, packaging).

15. To perform basic technological operations for preparing semi-solid preparations and suppositories (melting of ingredients mixing, packaging).

16. To choose labor saving devices for preparing semi-solid preparations and suppositories.

17. To substantiate production conditions for injections, eye preparations and intra-pharmacy half products.

18. To perform basic technological operations for preparing solutions for injection and liquid eye preparations (dissolution, filtration, packaging, sterilization).

19. To choose labor saving devices for preparing solutions for injection, liquid eye preparations and intra-pharmacy half products.

20. To calculate deviations allowed in dispensing of solid preparations.

21. To substantiate appropriate conditions for storage of drug products in pharmacy.

22. To select packaging materials and containers in accordance with dosage form and physical and chemical properties of ingredients.

23. To select labels (basic, additional, preventive) for dispensing extemporaneous preparations in accordance with administration.

24. To prepare extemporaneous preparations for dispensing.

**Assessment criteria of practical skills:**

- **5 points** – student correctly, clearly and completely performs the task; makes integration of theory and practice; can generalize information and demonstrate good practical skills.
- **4 points** – student performs the task correctly; demonstrates good practical skills but makes slight mistakes; uses theoretical knowledge correctly to solve the practical tasks; can solve easy and average situational problems; has necessary practical abilities which exceed the basic minimum.
- **3 points** – student makes significant mistakes during the demonstration of practical skills, performs the practical task incompletely, solving only the easiest problems; has the necessary minimum of technological knowledge.
- **0 points** – student has performed less than 50% of the tasks from the thematic plan of the practical training and cannot give the logical answers, does not understand the material; makes significant mistakes during the demonstration of practical skills.

## ASSESSMENT OF STUDENT'S WORK DURING THE PRACTICAL TRAINING

| № | Practical skills and abilities | Date | Mark in points | Sign |
|---|---|---|---|---|
| 1. | To use normative, informative and study literature for solving professional problems | | | |
| 2. | To characterize structural subdivisions of pharmacy, its production premises | | | |

| | | | | |
|---|---|---|---|---|
| 3. | To analyze requirements to sanitary conditions of the production premises, preparation, washing and drying of pharmacy utensils | | | |
| 4. | To know requirements to personal hygiene of personnel | | | |
| 5. | To choose methods for receiving purified water, its storage and quality control | | | |
| 6. | To choose suitable prescription and hand scales | | | |
| 7. | To weigh dry active ingredients and excipients | | | |
| 8. | To weigh viscous substances and thick liquids | | | |
| 9. | To use dosing devices and the other labor saving devices for preparing solid preparations | | | |
| 10. | To dose liquid preparations using measuring devices | | | |
| 11. | To calibrate empirical droppers | | | |
| 12. | To use labor saving devices (e.g., burettes, apparatus for preparing water extracts etc) for preparing liquid preparations | | | |
| 13. | To perform basic technological operations for preparing solid preparations (grinding, mixing, sieving, packaging) | | | |
| 14. | To perform basic technological operations for preparing liquid preparations (dissolution, filtration, packaging) | | | |
| 15. | To perform basic technological operations for preparing semi-solid preparations and suppositories (melting of ingredients, mixing, packaging) | | | |
| 16. | To choose labor saving devices for preparing semi-solid preparations and suppositories | | | |
| 17. | To substantiate production conditions for injections, eye preparations and intra-pharmacy half products | | | |
| 18. | To perform basic technological operations for preparing solutions for injection and liquid eye preparations (dissolution, filtration, packaging, sterilization) | | | |
| 19. | To choose labor saving devices for | | | |

| | | | | |
|---|---|---|---|---|
| | preparing solutions for injection, liquid eye preparations and intra-pharmacy half products | | | |
| 20. | To calculate deviations allowed in dispensing of solid preparations | | | |
| 21. | To substantiate appropriate conditions for storage of drug products in pharmacy | | | |
| 22. | To select packaging materials and containers in accordance with dosage form and physical and chemical properties of ingredients | | | |
| 23. | To select labels (basic, additional, preventive) for dispensing extemporaneous preparations in accordance with administration | | | |
| 24. | To prepare extemporaneous preparations for dispensing | | | |
| | **Total sum of points** | | | |

## FINAL CONTROL OF PRACTICAL TRAINING

To write a final control paper on the propaedeutic practical training are allowed students who have achieved the minimum score (72 points) for practical skills, rendered the report and positive reference letter from the supervisor from the pharmacy.

According to the syllabus of the practical training, students write the final control on the last day of the practical training with the Commission of the supervisors from the pharmacy and the Department.

According to the academic plan, form of the final control of the propaedeutic practical training on "Drug Technology in Pharmacy" is a graded credit.

### List of questions for final control

1. Requirements to sanitary and anti-epidemic regime of pharmacy, normative standards.
2. Washing and disinfection products used in pharmacy to provide the appropriate sanitary conditions of premises and equipment.
3. Receiving of purified water in pharmacy. Equipment.
4. Conditions and time of storage of purified water in pharmacy.
5. Devices for dosing of dry, viscous and liquid substances in pharmacy.
6. Types of balances. Prescription and hand scales, construction.
7. Weights. Weighing techniques.
8. Classification of dosage forms.
9. Dosage forms that can be compounded in pharmacy.
10. General technological operations for preparing powders.

11. Packaging material for powders.

12. Types of labels for labeling the preparations produced by individual prescriptions and intra-pharmacy half products.

13. General technological operations for preparing liquid preparations.

14. Measuring (volumetric) apparatus for preparing liquid preparations.

15. Materials for filtering the solutions.

16. Labor saving devices for filtering and dosing the solutions.

17. Containers and sealing materials for dispensing the liquid preparations.

18. Technological operations for preparing semi-solid preparations for cutaneous application.

19. Technological operations for preparing rectal and vaginal suppositories.

20. Production conditions of injections and eye preparations.

21. Aseptics. Aseptic conditions in pharmacy.

22. Sterilization. Methods for sterilization of pharmacy utensils, drug products and the other objects.

23. Equipment for sterilization.

24. Containers and sealing materials for eye preparations and solutions for injection.

25. Preparation of extemporaneous formulations for dispensing.

**Assessment criteria of final control on the practical training:**

Final control is conducted in written form and includes 60 tests that are evaluated in 1 point, and 10 situational problems that are assessed in 2 points.

A maximum score that student can achieve for the final control is 80, a minimum score is 50.

| № | Task | Date | Mark in points | Sign of tutor |
|---|---|---|---|---|
| 1. | Tests | | | |
| 2. | Situational problems | | | |
| **Total points for final control** | | | | |

## REFERENCE AND ASSESSMENT OF STUDENT'S WORK DURING THE PRACTICAL TRAINING

From the pharmacy _____
_____
_____
_____
_____
_____

## MARK FOR PRACTICAL TRAINING

| Points for | | Total sum of points | Traditional mark | Date | Sign of tutor |
|---|---|---|---|---|---|
| Practical skills | Final control | | | | |
| | | | | | |

Supervisor of practical training

from the Department _____ _____

(sign) (full name)