**THEMATIC PLAN of practical lessons for foreign students**

 **2 courses Faculty of Pharmacy Department of English**

 **1 semester academic year 2012-2013**

|  |  |
| --- | --- |
| **SUBJECT** | **Hours** |
|  1. Pharmaceutical education in Ukraine. Expression location and sequence of actions over time. Gr. structures ЩО? триває СКІЛЬКИ часу?, ПІСЛЯ закінчення КУРСУ…, ПРОТЯГОМ …, ДЕ? є ЩО?, ХТО? може працювати ДЕ? | 4 |
| 2. The working day of medical students. Expression and location of its term. Expression of conditional relations. Gr. structures ХТО? вчиться ДЕ?, ВПРОДОВЖ ЧОГО?, ЩОБ .. | 4 |
| 3. Biology – a comprehensive science of wildlife. Origin of name of the biological science. Definition of the subject. Gr. structures ЩО? - це ЩО?, ЩО? - це наука про ЩО?, ЩО? вивчає ЩО?, ЩО?досліджує ЩО?. | 4 |
| 4. Chemistry. Definition of the subject. Gr. structures ЩО? - це ЩО?. ЩО? - ЩО?. Characteristics of the composition of the subject. Gr. structures ШО? складається з ЧОГО?, ЩО? входить до складу ЧОГО?. Description the subject of external and internal feature. Gr. structures ЩО? має ЩО?, ЩО ? не має ЧОГО?, ЩО? - це ЩО? без ЧОГО?, ЩО? поділяється на ЩО? | 4 |
| 5.Pharmacology as pharmaceutical science/ Expression ratio of parts and whole, their interdependence, communication between different sections of science . Gr. structures ЩО? є ЧИМ?, ЩО? вивчає ЩО? ЩО? ґрунтується на ЧОМУ?, ЩО? спирається на ЩО?, ЩО? проводиться на ЧОМУ? | 6 |
| 6. Pharmacodynamics. Expression of the result of interaction between substances and the body. Characteristics of chemical bonds in the role of pharmacological reactions. Gr. structures ЩО? ґрунтується на ЧОМУ?, ЩО? визначає ЩО?, ЩО? притягується ЧИМ?, ЩО? відбувається ДЕ? Verbal nouns.  | 6 |
| 7. Pharmacokinetics. Characteristics of separation subject to destination, time of expression. Gr. structures ЩО? поділяють на ЩО?, ЩО? досліджує ЩО?, ЩО? визначає ЩО?, ЩО? розвинулось КОЛИ? The formation of verbal nouns.  | 4 |
| 8. Types of drug therapy and drag choice. Expression of conditional and causal relations. Feature of the process. Gr. structures ЯКЩО …, ТО…, ЩО? здійснюється ЯК?, ЩО? супроводжується ЧИМ?, КОЛИ? Degrees of comparison of adjectives.  | 8 |
| 9. Understanding drug, means, form, preparation materials. Definition of the subject. Description of subject matter and description of its purpose. Gr. structures ЩО? – це ЩО?, ЩО? запобігає ЧОМУ?, ЩО? змінює ЩО?, ЩО? є ЧИМ?, з ЧОГО? Виготовляють ЩО? | 4 |
| 10. Pharmaceutical form. Characteristics of the division of subjects for consistency, consistency of flow. Gr. structures ЩО? поділяють на ЩО?, ЩО? відбувається ЯК?, ЩО? здійснюється ЯК? | 4 |
| 11.Drugstore. Definition of the subject. Characteristics subject to destination and use. Gr. structures ЩО? – це ЩО?, ЩО? виготовляють ДЕ?, ДЕ? здійснюють ЩО?, ЩО? проводять ЩО?. | 4 |
| 12. Recipe. Definition of the subject. Characteristics of subjects at a quantitative and qualitative composition. Gr. structures ЧИМ? називається ЩО?, ЩО? складається з ЧОГО?, ДЕ? Пишуть ЩО?, ЩО? завершують ЧИМ? | 4 |
| 13. Writing prescriptions. Characteristics of the process by the steps of the method. Gr. structures ЩО? виписують ЯК?, ЩО? пишуть КОЛИ?, Що? позначають ЯК?. | 4 |
| *Final test control of module 3* | 2 |
| *Total hours*  | *62* |

 **TOPICS LECTURE**

 **the Ukrainian language for students of the second course
 pharmaceutical departments     English Department**

 **2012-2013 st.y.**

|  |  |  |
| --- | --- | --- |
|  |  **SUBJECT** |  **Quantity of hours** |
| Med. | Dent. | Pharm. |
| 1. | Place of the Ukrainian language among other Slavic languages. |  2 | 2 |  2 |
| 2. | The notion of literary language. Ukrainian literary language. |  2 | 2 |  2 |
| 3. | Written and oral forms of the Ukrainian language. |  2 | 2 |  2 |
| 4. | Stylistic variations of the Ukrainian language. |  | 2 |  2 |
| 5. | The meaning of word.. Word of concrete and abstract. Polysemy of words in modern Ukrainian. |  | 2 |  2 |
| 6. | Ukrainian language vocabulary. The composition of the modern Ukrainian language in terms of its origin. |  | 2 |  2 |
|  | ***Total*** |  6 |  12 |  12 |

**SCHEDULE of LECTURES on Analytical Chemistry
for Second Year Pharmacy Students**

**Autumn 2012/2013**

Semester duration – 03.09.2012 – 20.01.2013

**Module 1. «Qualitative Analysis.
Theoretical Base of Analytical Chemistry.
Analysis of cations of I-VI groups»**

|  |  |  |
| --- | --- | --- |
| **No** | **Theme of Lecture** | **Datum** |
| 1. | Analytical chemistry and chemical analysis. Main conceptions, principles, tasks and methods of qualitative analysis. Analytical reactions, requirements to them. Dependence of analytical properties of compounds accordingly to the elements location in periodical table. Analytical groups of cations and anions. Acidic-basic classification of cations. Theory of electrolytes, strong and weak electrolytes. Analytical concentration and ions activity, dependence between their, coefficient of activity. | 12.09.2012 |
| 2 | Using law mass action due to equations (balance) in heterogeneous systems (precipitate-saturated solution systems). Colloid systems, importance for chemical analysis. | 26.09.2012 |
| 3. | Law mass action in analytical chemistry. Application due to different ionic equations (balance) in homogenous systems. Protolytic balance and balance in buffers, balance in hydrolysis. | 10.10.2012 |
| 4. | Law mass action in analytical chemistry. Application due to different ionic equations (balance) in homogenous systems. Reducing-oxidising systems. | 24.10.2012 |
| 5. | Law mass action in analytical chemistry. Application due to different ionic equations (balance) in homogenous systems. Solutions of complex and amphoterric compounds. Organic reagents and their application in analysis. | 07.11.2012 |

Total**: 10 hrs**

**Module 2. «Qualitative Analysis.
Theoretical Base of Analytical Chemistry.
Analysis of anions mixtures. Extraction. Chromatography»**

|  |  |  |
| --- | --- | --- |
| **No** | **Theme of Lecture** | **Hours, Datum** |
| 1. | Application law mass action due to equations (balance) in heterogeneous systems. Methods of separation and concentrating of substances. Extraction in analytical chemistry. | 21.11.2012 |
| 2. | Chromatographic methods of analysis. Fundamentals of chromatography. Classification of chromatographic techniques. Application for analysis of inorganic and organic substances. | 05.12.2012 |
| 3 | Fundamentals of chromatography. Application in analysis. | 19.12.2012 |
| 4. | Liquid chromatography. Classification of technique. High performance liquid chromatography (HPLC). Application in analysis. | 16.01.2012 |

Total: **8 hrs**

Acting chief of toxicological and analytical chemistry department M. Kucher, PhD

**SCHEDULE of LABORATORY LESSONS on Analytical Chemistry
for Second Year Pharmacy Students**

**Autumn 2012/2013**

Semester duration – 03.09.2012 – 20.01.2013

**Module 1. «Qualitative Analysis. Fundamentsls of Analytical Chemistry.
Analysis of cations of I-VI groups»**

|  |  |  |
| --- | --- | --- |
| **No** | **Theme of lesson** | **Hours, datum** |
| **Substantial module 1. «Qualitative Analysis. Fundamentals of Analytical Chemistry. Analysis of mixture of I-III groups of cations»** |
| 1. | Rules of safety appliance in chemical laboratory. Acidic-base classification of cations. Characteristic reactions of I analytical group cations and condition of their detection. Analysis of mixture of I analytical group cations. | 4,503.09.2012 |
| 2. | Group reagent for II analytical group cations. Characteristic reactions of II analytical group cations and condition of their detection. Analysis of mixture of II analytical group cations. | 4,510.09.2012 |
| 3. | Group reagent of III analytical group cations. Characteristic reactions of III analytical group cations and condition of their detection. Analysis of mixture of III analytical group cations. | 4,517.09.2012 |
| 4. | Analysis of mixture of I-III analytical groups cations. | 4,524.09.2012 |
| 5. | Analysis of mixture of I-III analytical groups cations. **Substantial modular control.** | 4,501.10.2012 |
| **Substantial module 2 «Qualitative Analysis. Fundamentals of Analytical Chemistry. Analysis of mixture of IV-VI groups of cations»** |
| 6. | Group reagent of IV analytical group cations. Characteristic reactions of IV analytical group cations and condition of their detection. The analysis of mixture of IV analytical group cations. | 4,508.10.2012 |
| 7. | Group reagent of V analytical group cations. Characteristic reactions of V analytical group cations and condition of their detection. | 4,515.10.2012 |
| 8. | Group reagent of VI analytical group cations. Characteristic reactions of VI analytical group cations and condition of their detection. The analysis of mixture of VI analytical group cations. | 4,522.10.2012 |
| 9. | Analysis of mixture of cations of IV-IV analytical groups. Students’ individual work. **Substantial modular control*.***  | 4,529.10.2012 |
| 10. | **Final modular control.** | 4 05.11.2012 |

**Module 2. «Qualitative Analysis. Fundamentals of Analytical Chemistry.
Analysis of anions mixtures. Extraction. Chromatography»**

|  |
| --- |
| **Substantial module 3. « Fundamentals of Analytical Chemistry. Analysis of anions mixtures. Extraction»** |
| 1. | Group reagents of anions and conditions of their using. Characteristic reactions of I analytical group of anions and condition of their detection. Analysis of anions mixture. | 4,512.11.2012 |
| 2. | Group reagent of II group anions and conditions of their using. Characteristic reactions of anions of II-III analytical groups. Characteristic reactions of anions of organic acids and condition of their detection. Special cases of anions mixtures analysis. Analysis of mixture of I-III analytical groups anions. | 4,519.11.2012 |
| 3. | General reactions of authenticity, tests of purity and permissible limits of impurities. Preparation of plates for thin-layer chromatography. **Substantial modular control*.*** | 4,526.11.2012 |
| **Substantial module 4. « Fundamentals of Analytical Chemistry. Chromatographic methods»** |
| 4. | Sediment chromatography on paper and on columns. Separation of ions mixtures on chromatographic plates (TLC). Application of extraction in qualitative analysis for ions selection and identification. | 4,503.12.2012 |
| 5. | Gas chromatography. Qualitative analysis. Identification of alkyl nitrites on retention parameters.  | 4,510.12.2012 |
| 6. | Quantitative gas-chromatographic analysis. Determination of ethyl nitrite in solutions with different calibration methods. **Substantial modular control*.*** | 4,517.12.2012 |
| 7. | Analysis of dry salts mixtures. Students’ individual work. | 6,524.12.2012 |
| 8. | **Final modular control.** | 214.01.2013 |

**Total: 80 hrs**

Acting chief of toxicological and analytical chemistry department M. Kucher, PhD

**SCHEDULE of INDIVIDUAL WORK on Analytical Chemistry
for Second Year Pharmacy Students**

**Autumn 2012/2013**

Semester duration – 03.09.2012 – 20.01.2013

**Module 1. «Qualitative Analysis. Fundamentsls of Analytical Chemistry. Analysis of cations of I-VI groups»**

|  |  |  |
| --- | --- | --- |
| **No** | **Theme** | **Hours, datum** |
| 1. | Solving calculation problems on sensitivity on analytical reactions. Find relationship between analytical properties of K+, Na+, NH4+ cations and position in Periodic Table. | 403.09-09.09.2012 |
| 2 | Study main concepts of electrolytes theory. Solving calculation problems on solubility and solubility product.  | 410.09-16.09.2012 |
| 5 | Study systematic analysis of mixture of I, II, and III groups cations. Solving simulate problems. | 417.09-23.09.2012 |
| 4 | Solving calculation problems on electrolytes solutions in heterogeneous systems.  | 424.09-30.09.2012 |
| 5 | Solving calculation problems on weak and strong electrolytes solutions in homogenous systems: pH, hydrolysis, buffers. | 401.10-07.10.2012 |
| 6 | General description of complex compounds. Functional-analytical and analytically active groups in organic reagents. Using of organic reagents in analytical chemistry. | 508.10-14.10.2012 |
| 7 | Study systematic analysis of mixture of IV, V, and VI groups cations. Solving simulate problems. | 515.10-21.10.2012 |
| 8 | Solving calculation problems on balance in solutions of complex compounds. | 522.10-28.10.2012 |
| 9 | Redox equations. Solving calculation problems on balance in solutions of reducers and oxidizers. | 529.10-04.11.2012 |

**Module 2. «Qualitative Analysis. Fundamentals of Analytical Chemistry. Analysis of anions mixtures. Extraction. Chromatography»**

|  |  |  |
| --- | --- | --- |
| 1. | Classifications of anions in accordance to different properties. Solving model problems of anions mixtures. | 605.11-11.11.2012 |
| 2. | Systematic analysis of mixture of anions of I-III groups. Solving simulative problems. | 612.11-18.11.2012 |
| 3. | Solving simulative problems on separation and concentration techniques.  | 619.11-25.11.2012 |
| 4. | Solving simulative problems on extraction technique. | 626.11-02.12.2012 |
| 5. | Thin-layer and sediment chromatography. Fundamentals. Solving simulative problems. | 503.12-09.12.2012 |
| 6. | Gas chromatography and high-performance liquid chromatography. Solving simulative problems. | 510.12-16.12.2012 |

**Total: 74 hrs**

**Calendar and thematic plan**

*of lectures of* “**Organic chemistry ”** *for the 2-d Year* *students*

*of the Pharmaceutical Faculty*

(Autumn semester of 2012/2013 educational year)

|  |  |  |  |
| --- | --- | --- | --- |
| №  | Theme of lecture | Hours | Date |
| 1 | **Module 1. Nomenclature, classification, methods of identification and purification of the organic compounds. Reactivity of the hydrocarbons.**Introduction to the organic chemistry. Chemical bond and atoms interaction in the organic compounds. | 2 | 12.09 |
| 2 | Methods of the identification of the organic compounds. Spatial (stereo) structure of the organic compounds | 2 | 26.09 |
| 3 | Classification of the organic reactions and reagents. Saturated hydrocarbons. | 2 | 10.10 |
| 4 | Unsaturated hydrocarbons | 2 | 24.10 |
| 5 | Aromatic compounds | 2 | 07.11 |
|  | **Total hours** | **10** |  |
| 1. | **Module 2. Halogen-, oxygen-, sulfur- and nitrogen-containing organic compounds**Halogen-derivatives of the hydrocarbons. Mechanisms of the nucleophilic substitution and elimination. | 2 | 21.11 |
| 2 | Hydroxy derivatives of hydrocarbons and thio-analogs (alcohols, thioles, phenols) | 2 | 05.12 |
| 3 | Amines. Acidic and basic properties of organic compounds. | 2 | 19.12 |
| 4 | Nitrogen-containing organic compounds (nitro-, diazo-, azocompounds, azodyes ) | 2 | 26.12 |
|  | **Total hours** | **8** |  |

**Calendar and thematic plan**

*of practical works of* “**Organic chemistry ”** *for the 2-d Year* *students*

*of the Pharmaceutical Faculty*

 (Autumn semester of 2012/2013 educational year)

|  |  |  |  |
| --- | --- | --- | --- |
| №  | Theme  | Hours | Date |
| 1. | **Module 1. Nomenclature, classification, methods of identification and purification of the organic compounds. Reactivity of the hydrocarbons.**Introduction. Classification, nomenclature, and structural isomerism of the organic compounds. | 5 | 07.09 |
| 2 | Types of the chemical bonds and atoms interactions in the molecules of the organic compounds. Laboratorial equipments.  | 5 | 14.09 |
| 3 | Methods of the purification of the organic compounds. Determination of the physic-chemical constants of the organic compounds.  | 5 | 21.09 |
| 4 | Spatial structure of the biologically active compounds | 4 | 28.09 |
| 5 | Determination of the organic compounds structures. Classification of the organic reactions and reagents | 4 | 05.10 |
| 6 | Saturated hydrocarbons. (Alkanes and cycloalkanes) | 4 | 12.10 |
| 7 | Unsaturated hydrocarbons (Alkenes,alkynes, alkadienes) | 5 | 19.10 |
| 8 | Mononuclear aromatic compounds | 5 | 26.10 |
| 9 | Polynuclear aromatic compounds.  | 4 | 02.11 |
|  | Total hours | 41 |  |
|  | **Final module control** | **4** | **09.11** |
| 1. | **Module 2. Halogen-, oxygen-, sulfur- and nitrogen-containing organic compounds** Halogen-derivatives of the hydrocarbons. Mechanisms of the nucleophilic substitution and elimination. The methods of halogenation | 5 | 16.11 |
| 2 | Mono alcohols, ethers. The methods of halogenation (continuation). | 5 | 23.11 |
| 3 | Polyalcohols, phenols, naphtols. Thioalcohols. | 4 | 30.11 |
| 4 | Amines. Acidic and basic properties of organic compounds. | 4 | 07.12 |
| 5 | Nitro-compounds. The methods of nitration of the organic compounds. | 4 | 14.12 |
| 6 | Diazo- and azocompounds. The methods of nitration of the organic compounds (continuation). | 4 | 21.12 |
| 7 | Azo-dyes. The methods of diazotation and azo coupling. | 5 | 28.12 |
|  | **Total hours** | **31** |  |
|  | **Final module control** | **4** | **11.01** |

**thematic plan**

*of out-classes works of* “**Organic chemistry ”** *for the 2-d Year* *students*

*of the Pharmaceutical Faculty*

 (Autumn semester of 2012/2013 educational year)

|  |  |  |
| --- | --- | --- |
| №  | Theme  | Hours |
| 1. | **Module 1. Nomenclature, classification, methods of identification and purification of the organic compounds. Reactivity of the hydrocarbons.**Physical methods of structure confirmation of organic compounds (NMR, mass-spectrometry) | 5 |
| 2 | Types of the chemical bonds. Types of hybridization of atomic orbitals (Nitrogen, Oxygen). The main characteristics of covalent σ- and π-bonds. | 5 |
| 3 | Methods of study and confirmation the structure of organic compounds | 3 |
| 4 | Conformers and isomers. Newman and Fischer projections. Enantiomers and diastereomers.  | 5 |
| 5 | Mechanisms of reactions in organic chemistry. Types of chemical reactions | 5 |
| 6 | Determination of molecular mass of organic compounds. | 3 |
| 7 | Energy conditions of organic reactions | 4 |
| 8 | Non-benzene aromatic systems | 5 |
| 9 | Triphenylmethane dyes  | 3 |
| 10 | Preparation to the final module № 1 | 6 |
|  | **Total hours** | **44** |
| 1. | **Module 2. Halogen-, oxygen-, sulfur- and nitrogen-containing organic compounds** Reactivity halogen-derivatives of the hydrocarbons.  | 4 |
| 2 | Synthesis and properties of naphtoles | 3 |
| 3 | Identification of aromatic and aliphatic amines. | 3 |
| 4 | Structure of azo dyes | 4 |
| 5 | Hard and soft acids and bases | 3 |
| 6 | Red-ox reactions of different classes of the organic compounds | 3 |
| 7 | Acidic and basic properties of organic compounds | 4 |
| 8 | Preparation to the final module № 2 |  |
|  | **Total hours** | **30** |

**Thematic plan of lectures**

**on Pharmaceutical Botany**

for students of II course of pharmaceutical faculty

 for autumn semester 2012-2013 study years

|  |  |  |
| --- | --- | --- |
| № | Themes of lectures | Hours |
| 1. | Introduction to botany. Anatomy of plant as a part of botany. Cell theory. Structure of plant cell and its components and their functions, cell wall, cytoplasm, nucleus, vacuole. Microscopic analysis of plants raw materials. | 2 |
| 2. | Introduction to phytohistology. Plant tissues, their structure, and arrangement in the organs and functions. Classification of tissues according to their origin and functions. Meristems, dermal, support, vascular, secretory and ground tissues. | 2 |
| 3. | Vegetative organs of higher plant. Physiological functions and morphology-anatomical structure of dicot and monocot roots. Specialized roots. Morphology- anatomical structure of stems. Specialized stems. Shoots. Bugs. Features of woody stems. Specialized stems and shoots. | 2 |
| 4. | Leaf. Functions, development, types of anatomical and morphological structure of dicot and monocot leaf blade. Specialized leaves. | 2 |
| 5. | Generative organs of angiosperms. Flower, its structure and functions. Inflorescence, its structure and classification. Biology of reproduction. Fruits and seeds formation. Structure and classification of fruits and seeds. Growtle and development of seed.  | 2 |
| 6. | Plants names and classification. Development of the Kingdom concept. Classification of the Major groups. Classification of fungi and lichens; vascular plants: ferus and their relatives gymnosperms. Plant species of these groups witle medicinal uses. Angiosperm - higher stage of evolution in the plant world. | 2 |
|  | **Total:** | **12** |

**Thematic plan of laboratory works**

**on Pharmaceutical Botany**

for students of II course of pharmaceutical faculty

for autumn semester 2012-2013 study years

|  |  |  |
| --- | --- | --- |
| № | Theme of laboratory work | Hours |
| 1. | The botanical microtechnic. The structure of plant cell. | 2,5 |
| 2. | Plastids: chloroplasts, leucoplasts, chromoplasts. The cell sap and its composition. | 2,5 |
| 3. | Storage substances: starch and aileron grains. Storage and excretory substances; types of crystals. | 2,5 |
| 4. | Meristematic tissues. Primary and secondary meristems. | 2,5 |
| 5. | Dermal tissues: epiderma, peryderma, rhytidome. | 2,5 |
| 6. | Support tissues: collenchyma, schlerenchyma, schlereids.  | 2,5 |
| 7. | Vascular tissues structure. | 2,5 |
| 8. | Vascular bundles: radial, collateral, bicollateral, concentric. | 2,5 |
| 9. | Ground tissues. Secretory tissues: external and internal secretion. | 2,5 |
| 10. | Primary and secondary structure of roots of monocot and dicot. | 2,5 |
| 11. | Anatomical structure of stems and rhizomes of monocot. | 2,5 |
| 12. | Anatomical structure of stems and rhizomes of dicot. | 2,5 |
| 13. | Anatomical structure of monocot and Gymnosperms leaves . | 2,5 |
| 14. | Anatomical structure of dicot leaves. | 2,5 |
| 15. | Morphology of vegetative organs of plants. | 2,5 |
| 16. | Morphology of generative organs of plants: flowers and inflorescences. | 2,5 |
| 17. | Morphology of generative organs: fruits and seeds. | 2,5 |
| 18. |  Summary control of Module 1. | 2,5 |
|  | **Total :** | **45**  |

**Thematic plan of іndependent works**

 **on Pharmaceutical Botany**

for students of II course of pharmaceutical faculty

for autumn semester 2012-2013 study years

|  |  |  |
| --- | --- | --- |
| № | Themes of іndependent works | Hours |
| 1. | Theoratical skills for laboratory works | 25 |
| 2. | Independent study of some topics and thems of pragram | 42 |
| 2.1. | Aim and tasks of pharmaceutical botany, it`s connection with others subjects. Botany sections.Useful of plants in pharmacy and medicine | 2 |
| 2.2. | Methods of cytology, their significance for pharmacy. Organization of plant cells. Comparison of bacteria, fungi, plant and animal cells. | 2 |
| 2.3. | Biochemical cytology, it`s useful in pharmacognosy and pharmacy. Connection of cells in plant organizm. Plant tussues – principles of classification. | 2 |
| 2.4. | Determination, drawing and discription of varions types of meristems from photo of microslides and cross section of vegetative organs of plants. | 2 |
| 2.5. | Determination, drawing and discription of varions types of dermal tissues from photo of microslides and cross section of vegetative organs of plants. | 2 |
| 2.6. | Determination, drawing and discription of varions types of mechanical and vascular tissues from photo of microslides and cross section of vegetative organs of plants. | 2 |
| 2.7. | Determination, drawing and discription of varions types of ground and secretory tissues from photo of microslides and cross section of vegetative organs of plants. | 2 |
| 2.8. | Determination, drawing and discription of varions types of vessels of varions types from photo of microslides and cross section of vegetative organs of plants. | 2 |
| 2.9. | Main terms of morphology. Morphological, anatomical and functional integrity of plant. Evolution of tissues and organism of plant. | 2 |
| 2.10. | Vegetative organs of plants: germination, growth, regularity and functional integrity. Anatomical structure and function of vegetative organs. Correlation and interaction of cells and tissues in plant organism. Shoot and rott – main vegetative organs of plant, common features and peculiarities. | 3 |
| 2.11. | Determination, drawing and discription of anatomy of rotts of monocots and dicots grassy plant according to their cross section photographyes.  | 2 |
| 2.12. | Axial cylinder types of main groups of higher plants. Leaf tracks of branching. Anatomical features for distinction of stems, life forms of stem like axial organ for taxonomy. | 2 |
| 2.13. | Determination, drawing and discription of anatomical structure of stems of monocots and dicots grassy plants and stems of woody angiosperms and gymnosperms according to their cross section photographyes | 2 |
| 2.14. | Determination, drawing and discription of anatomical structure of rizomes of angiosperms and gymnosperms according to their cross section photographyes | 2 |
| 2.15. | Determination, drawing and discription of anatomical structure of leaves of angiosperms and gymnosperms according to their cross section photographyes | 2 |
| 2.16. | Morphological diversity of roots and shoots. Buds: structure, classification, varicty and importance. | 2 |
| 2.17. | Overground and underground metamorphoses of shoots: structure, functions and diagnostic importance. Analogy and homology organs. Life forms of plants. | 2 |
| 2.18. | Reproductive organs. Evolution of reproductive structures from unicellular algaes to specielized in angiosperms. Evolution of flowers. | 2 |
| 2.19. | Types and manners of pollination. Micro- and megasporogenesis, gametogenesis. Double fertilization; formation and development of seed and fruit. Distribution of fruits and seeds. Biological role and practical using of fruits and seeds in pharmacy, medicine. | 2 |
| 2.20. | Reproduction of phototrops and fundies.  | 3 |
| 3. | Training to control of Module 1. | 5 |
|  | **Total:** | **72** |

THEMatic PLAN OF LECTURES

on Pathological Physiology for students

of pharmaceutical faculty

3rd semester

2012-2013 study years

|  |  |  |  |
| --- | --- | --- | --- |
| **Date** | **Theme** | **Amount of hours** | **Lecturer** |
| 12/09/10 | Subject, tasks and methods of pathological physiology. Basic definitions of general nosology. General study about disease.  | 2 | Baida |
| 26/09/10 | The role of heredity and constitution in pathology | 2 | Baida |
| 10/10/10 | Pathology оf reactivity. Allergy its etiology, pathogenesis, and clinical manifestations.  | 2 | Baida |
| 24/10/10 |  Typical pathological processes. Inflammation: its type  | 2 | Sementsiv |
| 07/12/12 | Disorders of vitamins metabolism.s and manifestations. | 2 | Sementsiv |
|  Total number of hours |  10 |

THEMatic PLAN OF PRACTICAL classes

on Pathological Physiology for students

of pharmaceutical faculty

3rd semester

2012-2013 study years

|  |  |  |
| --- | --- | --- |
| # | Theme | Hours |
| 1 | Introduction. Role of experimental method in pathology. Modeling of pathological processes.  | 2,5 |
| 2 | General study about disease. Etiology and pathogenesis. | 2,5 |
| 3 | Pathogenic influence of atmospheric pressure. | 2,5 |
| 4 | Pathogenic influence of the ionizing radiation on the organism. | 2,5 |
| 5 | The role of hereditary in pathology.  | 2,5 |
| 6 | The role of reactivity in pathology. Allergy | 2,5 |
| 7 | Local disorders of blood circulation: thrombosis, embolism. | 2,5 |
| 8 | Cell injury.  | 2,5 |
| 9 | Starvation. | 2,5 |
| 10 | Inflammation. | 2,5 |
| 11 | Fever. | 2,5 |
| 12 | Pathology of tissue growth. Tumors. | 2,5 |
| 13 | Disorders of vitamins metabolism. | 2,5 |
| 14 | Disorders of carbohydrates metabolism. | 2,5 |
| 15 | Pathophysiology of water and electrolyte disorders. | 2,5 |
| 16 | Final module test. | 2,5 |
|  | Total | 40 |

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