

SYLLABUS

1. General information about the course

Full name of the course	Functional diagnostic methods in obstetrics and gynaecology
Full official name of the higher education institution	Sumy State University
Full name of the structural unit	SumDU Medical Institute. Department of Obstetrics, Gynaecology and Family Planning
Developer(s)	Nikitina Iryna Mykolaivna
Level of higher education	Second level of higher education, NQF - level 7, QF-LLL - level 7, FQ-EHEA - second cycle
Teaching semester	18 weeks during the 9th semester
Scope of the course	The programme consists of 5 ECTS credits, 150 hours. For full-time students, 36 hours of contact work with the teacher (36 hours of practical classes), 114 hours of independent work
Teaching language	Ukrainian

2. Course place in the curriculum

Status of course	Elective course for the Medicine curriculum
Prerequisites for studying the course	Krok-1. Knowledge of anatomy, physiology, pat. physiology
Additional conditions	No additional conditions
Restrictions	No restrictions

3. The course aim

To use the basic methods of functional diagnostics in obstetric and gynaecological practice. To learn the correct choice of diagnostic methods from a large number of different examination types in obstetrics and gynaecology that are necessary for disease treatment and differentiation.

4. The course content

Module 1: Functional diagnostics in obstetrics and gynaecology

Topic 1. Modern methods of examination of gynaecological patients. Laboratory methods of research

Providing information on the topic relevance. Features of gynaecological and reproductive history, objective examination for gynaecological patients. The main methods of gynaecological examination of women (examination in mirrors; bimanual, rectal examination). Instrumental research methods in gynaecology. Oncocytological examination. Technique of taking a smear for oncocytological examination. Types of smears. Bacterioscopic and bacteriological examination. The technique of taking a smear for microscopic examination. Degrees of vaginal cleanliness. Smear on the hormonal mirror.

Topic 2. Hormonal testing (blood hormones, functional diagnostic tests)

Determination of blood hormones: FSH, LH, prolactin, progesterone, estradiol, total testosterone, free testosterone, functional diagnostic methods. Functional diagnostic tests (pupil symptoms, ferns, mucus tension, basal temperature measurement). Analysis of the basal temperature graph. Tests with hormones. Test with gestagens. Test with estrogens and gestagens. Test with dexamethasone. Cytological examination of vaginal smears: maturation index, karyopycnotic index, eosinophilic index.

Topic 3. Instrumental research methods in gynaecology. Probing of the uterine cavity. Biopsy of the uterine cavity. Puncture of the posterior vault

Technique of uterine probing to determine the patency of the cervical canal, the position and direction of the uterine cavity, its length and the state of the uterine wall relief. Indications and contraindications for probing. Probing used not only for diagnostic purposes, but also before some operations (curettage of the uterine cavity walls, cervical amputation, etc.) Biopsy – excision and microscopic tissue examination for diagnostic purposes. Biopsy tools. Biopsy techniques. Abdominal puncture through the posterior vault. Indications, contraindications, tools, techniques for diagnosis of ectopic pregnancy, ovarian apoplexy, pelvic peritonitis. Methods of anaesthesia.

Topic 4. Instrumental research methods in gynaecology. Diagnostic curettage of the uterine cavity

Instrumental removal of functional layers of the uterine mucosa along with the pathological formation. Diagnostic role in uterine bleeding, dysfunctional menstrual disorders, suspected malignant uterine tumours, placental and decidual polyps, hyperplasia and polyposis of the uterine mucosa, incomplete miscarriage, etc. Tools for diagnostic curettage of the uterine cavity. Histological examination of endometrial scraping. Indications, contraindications, techniques of operations. Compliance with rules of asepsis and antisepsis. Technique of general or local anaesthesia. Difficulties, diagnosis and prevention. Fractional diagnostic curettage of the uterine cavity – instrumental removal of the cervical mucosa and uterine cavity.

Topic 5. X-ray examination methods. X-ray of the Turkish saddle, hysterosalpingography

Hysterosalpingography as a method of examining the uterine cavity and fallopian tubes via X-rays. Its use to determine the patency of fallopian tubes, uterine malformations, endometriosis, tuberculosis of the fallopian tubes, presence of submucosal fibroids, synechiae and polyps. The method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications. Possible complications. Indications for the Turkish saddle X-raying in gynaecology.

Topic 6. Radiological methods of research. Gynaecography (pneumopelvography). Angiohysterosalpingography. Lymphography. Phlebography

Gynaecography (pneumopelvigraphy) as a method for diagnosis and alternative diagnosis of pelvic tumours, malignant tumours of genitals, genital anomalies. The method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications. Possible difficulties. Angiohysterosalpingography as a combined contrasting of pelvic vessels, uterine cavity and fallopian tubes. The method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications. Lymphography as determination of the lymphatic system state via X-ray contrast agents. The method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications. Phlebography as determination of the pelvic venous network state via contrast agents. The method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications.

Topic 7. Instrumental research methods in gynaecology. Ultrasound of the uterus and appendages

Ultrasonography in gynaecology as a method based on the ability of tissues of different densities to reflect or absorb ultrasound energy in different ways. Modern ultrasound equipment in examination of pelvic organs via various transducers: abdominal, vaginal, rectal. Ultrasound use to differentiate between uterine and ovarian neoplasms and to diagnose ectopic pregnancy. High information content, appropriate diagnosis, simplicity of examination and absence of contraindications as method advantages. Method disadvantages. Specific features of the patient's preparation for examination.

Topic 8. Instrumental research methods in gynaecology. Computed tomography

Computed tomography as a method of obtaining cross-sectional body images without superimposing objects. Diagnostics using computed tomography based on radiological symptoms: location, shape, size, tightness of tumour masses; compression or growth of surrounding tissues, condition of lymph nodes. Principles of computed tomography. Method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications.

Topic 9. Endoscopic examination methods in gynaecology

Examination of internal organ cavities via special lighting devices. Gynaecology, laparoscopy, hysteroscopy, culdoscopy, colposcopy, cystoscopy, rectoromanoscopy, diaphonoscopy, etc. The method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications.

Topic 10. Endoscopic methods of research in gynaecology. Colposcopy. Cervicoscopy

Colposcopy as examination of the cervix and vaginal mucosa via a colposcope. Colposcopy in detecting changes of the cervical epithelium, pre-tumour conditions; selecting a tissue section for biopsy; observing dynamic treatment changes of the cervix and vagina. Necessary equipment and tools for colposcopy. Technique of simple and advanced colposcopy. Schiller test. The concepts of adequate and inadequate colposcopic picture. Colposcopic signs LSIL, HSIL. Advantages and disadvantages of the method. Use indications and contraindications. Cervicoscopy as examination of the cervical canal with a cervicoscope through a colposcope. Advantages and disadvantages of the method. Use indications and contraindications.

Topic 11. Endoscopic methods of research in gynaecology. Hysteroscopy

A method of examining the uterine cavity via a hysteroscope. Indications for hysteroscopy. Office hysteroscopy. Hysterorectoscopy. Tools and equipment for hysteroscopy. Methods of hysteroscopy and effective anaesthesia. Advantages and disadvantages of the method. Control over the treatment effectiveness before carrying out surgical interventions and manipulations in the uterine cavity. Features of hysteroscopy in case of dysfunctional uterine bleeding, bleeding during menopause, possible uterine fibroids, adenomyosis and endometrial cancer, uterine abnormalities. Polypectomy, excision of septa and synechiae in the uterine cavity, removing foreign bodies and intrauterine devices from the uterine cavity using hysterectoscopy. Possible complications of hysteroscopy. Hysteroscopy contraindications: general infectious diseases, cardiovascular diseases, parenchymal organs, III-IV degree of vaginal secretion purity, acute female genital diseases.

Topic 12. Endoscopic methods of research in gynaecology. Laparoscopy. Culdoscopy

Examination of the abdominal cavity and pelvis via optical instruments through an incision in the anterior abdominal wall. Culdoscopy use for incision through the posterior vault. Laparoscopy use for differential diagnosis of uterine tumours and its adnexa, in case of suspicion of scleropolycystic disease, internal endometriosis, abnormalities of the internal genital organs, tuberculosis, ectopic pregnancy, as well as to clarify the causes of infertility and pain of unknown etiology. Laparoscopy contraindications. Special aspects of preparation for laparoscopic surgery. Necessary tools and equipment. Anaesthesia and technique of laparoscopic interventions. Possible difficulties during laparoscopy. Diagnosing injuries of anterior abdominal wall vessels, omentum, intestinal mesentery and intestinal wall. Technique of culdoscopy. Indications and contraindications.

<p>Topic 13. Laboratory diagnostic methods in obstetric practice. Biochemical screening programmes</p> <p>General clinical and biochemical tests. Hormonal diagnostics of the first, second and third trimester of pregnancy. Examination for perinatal infections. Determination of the pregnant woman's blood group, titer of anti-rhesus antibodies. Hormonal mirror. Smear for amniotic fluid leakage. Smears for microflora. Sampling technique. Biochemical markers of congenital malformations (chorionic gonadotropin, alpha-fetoprotein, estriol) at different stages of pregnancy. Their diagnostic value, median levels of these indicators.</p>
<p>Topic 14. Prenatal ultrasound diagnostics of congenital malformations of the fetus</p> <p>Non-invasive methods of prenatal diagnosis. Ultrasound examination, principles, indications, timing, diagnosis effectiveness of various fetal diseases, placenta assessment. Strategy of ultrasound prenatal diagnostics. Timing of ultrasound screening. Modern possibilities of prenatal ultrasound diagnostics of congenital malformations. Optimal timing of ultrasound screening in obstetrics. Ultrasound fetoplacentometry. Doppler blood flow in the uterine artery, umbilical cord artery, fetal aorta, middle cerebral artery. Diagnostic criteria for blood flow disorders. Critical parameters of blood flow. Tactics of managing a pregnant woman with uteroplacental and fetal blood flow disorders. Indications for immediate delivery. Determination of the fetal biophysical profile.</p>
<p>Topic 15. Cardiotocography</p> <p>Fetal monitoring as a method of examining the fetal heartbeat and uterine tones. Indications, timing and technique of CTG. Equipment for CTG. The method effectiveness. Evaluation of results.</p>
<p>Topic 16. Invasive methods of prenatal diagnostics</p> <p>General characteristics, indications and contraindications Methods of invasive prenatal diagnostics, timing of their implementation. Indications and contraindications for invasive prenatal diagnostics, possible complications after invasive diagnostics. Conditions for invasive diagnostics.</p>
<p>Topic 17. Methodology of invasive prenatal methods</p> <p>Indications, contraindications, conditions and technique of amniocentesis. Examination of amniotic fluid – levels of alphafetoprotein and sphingomyelin; examination of the optical density of amniotic fluid and bilirubin. Methods of chorionic biopsy, cordocentesis, placentocentesis, amniocentesis. Study of chorionic villi and placental cells (direct method, cultivation). Cultivation of amniocytes. Cordocentesis. Indications, contraindications, conditions and technique of cordocentesis. The method effectiveness. Instrumentation. Complications of cordocentesis. Analysis of the umbilical cord blood of the fetus.</p>
<p>Topic 18. Practice-oriented test</p> <p>Questions for the entire course “Functional diagnostic methods in obstetrics and gynaecology”: theory and test control. Course assessment. Summing up the results.</p>

5. Expected learning outcomes of the course

After successful completion of the course, the student will be able:

PH1	To collect medical information about the patient and analyse clinical data (patient interviewing skills)
PH2	To master the skills of functional diagnostic methods in obstetrics and gynaecology
PH3	To choose functional examination methods depending on the pathology for differential diagnosis of diseases in obstetrics and gynaecology
PH4	To interpret, analyze and summarize the data obtained from the use of functional diagnostic methods in accordance with the goal, objectives and criteria for achieving the expected results in pathology examination
PH5	To make informed decisions on the choice of functional diagnostic methods
PH6	To demonstrate mastery of the moral and deontological principles of a medical specialist and principles of professional subordination. To work in a team, use professional vocabulary in practice

7. The role of the educational component in the development of social skills

General competences and social skills, development of which is ensured by the course:

CH1	Ability to think abstractly, analyse and synthesize
CH2	Ability to learn and master modern knowledge
CH3	Knowledge and comprehension of the subject area and understanding of professional activities
CH4	Ability to adapt and act in a new situation
CH5	Ability to make informed decisions
CH6	Ability to use information and communication technologies
CH7	Ability to apply knowledge in practical situations
CH8	Determination and perseverance in relation to tasks and responsibilities

8. Types of training sessions

Topic 1. Modern methods of examination of gynaecological patients. Laboratory methods of research
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Practical class 1: “Modern methods of examination of gynaecological patients. Laboratory methods of research” (full-time)

Providing information on the topic relevance. Features of gynaecological and reproductive history, objective examination of a gynaecological patient. Main methods of gynaecological examination of women (examination in mirrors; bimanual and rectal examination). Instrumental methods of research in gynaecology. Oncocytological examination. Technique of taking a smear for oncocytological examination. Types of smears. Bacterioscopic and bacteriological examination. Technique of taking a smear for microscopic examination. Degrees of vaginal cleanliness. Smear on the hormonal mirror. Study of this topic involves theoretical work in the classroom, presentation and discussion.

Topic 2. Hormonal testing (blood hormones, functional diagnostics tests)

Practical class 2: “Hormonal testing (blood hormones, functional diagnostics tests)” (full-time)

Determination of blood hormones: FSH, LH, prolactin, progesterone, estradiol, total testosterone, free testosterone, functional diagnostic methods. Functional diagnostic tests (pupil symptoms, ferns, mucus tension, basal temperature measurement). Analysis of the basal temperature graph. Tests with hormones. Test with gestagens. Test with estrogens and gestagens. Test with dexamethasone. Cytological examination of vaginal smears: maturation index, karyopycnotic index, eosinophilic index.

Topic 3. Instrumental research methods in gynaecology. Probing of the uterine cavity. Biopsy of the uterine cavity. Puncture of the posterior vault

Practical class 3: “Instrumental research methods in gynaecology. Probing of the uterine cavity. Biopsy of the uterine cavity. Puncture of the posterior vault” (full-time)

Technique of uterine probing to determine the cervical canal patency, the position and direction of the uterine cavity, its length and state of the uterine wall relief. Indications and contraindications for probing. Probing use not only for diagnostic purposes, but also before some operations (curettage of the uterine cavity walls, cervical amputation, etc.) Biopsy as excision and microscopic examination of tissue for diagnostic purposes. Tools for biopsy. Biopsy technique. Abdominal puncture through the posterior vault. Indications, contraindications, instruments, technique for diagnosis of ectopic pregnancy, ovarian apoplexy, pelvic peritonitis. Methods of anaesthesia. Studying this topic involves theoretical work in the classroom, solving situational problems, testing, work in the simulation centre (phantom skill practice in uterine probing, posterior vault puncturing).

Topic 4. Instrumental research methods in gynaecology. Diagnostic curettage of the uterine cavity

Practical class 4: “Instrumental research methods in gynaecology. Diagnostic curettage of the uterine cavity” (full-time)

Instrumental removal of functional layers of the uterine mucosa together with the pathological formation. Diagnostic role in uterine bleeding, dysfunctional menstrual disorders, suspected malignant uterine tumours, placental and decidual polyps, hyperplasia and polyposis of the uterine mucosa, incomplete miscarriage. Instruments for diagnostic curettage of the uterine cavity. Histological examination of endometrial scraping. Indications, contraindications, procedure technique. Compliance with rules of asepsis and antisepsis. Technique of general or local anaesthesia. Complications, diagnosis, prevention. Fractional diagnostic curettage of the uterine cavity as an instrumental removal of the cervical and uterine mucosa. Studying this topic involves theoretical work in the classroom, work in the simulation centre (phantom diagnostic curettage of the uterine cavity).

Topic 5. Radiological research methods. Turkish saddle x-raying, hysterosalpingography

Practical class 5: “X-ray examination methods. Turkish saddle X-raying, hysterosalpingography” (full-time)

Hysterosalpingography as a method of examining the uterine cavity and fallopian tubes using X-rays. Its use to determine the fallopian tube patency, uterine malformations, endometriosis, tuberculosis of the fallopian tubes, presence of submucosal fibromatous nodes, synechiae and polyps. Instruments and contrast agents used for hysterosalpingography. Technique of hysterosalpingography. The method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications. Possible complications. Indications for X-ray of the Turkish saddle in gynaecology. Studying this topic involves theoretical work in the classroom, work in the radiology room of a medical institution (according to the cooperation agreement with the University), provided that there are no quarantine restrictions. Mastering skills to read radiographs.

Topic 6. Radiological research methods. Gynaecography (pneumopelvography). Angiohysterosalpingography. Lymphography. Phlebography.

Practical class 6: “X-ray examination methods. Gynaecography (pneumopelvography). Angiohysterosalpingography Lymphography. Phlebography” (full-time).

Gynaecography (pneumopelvigraphy) as a method for diagnosis and alternative diagnosis of pelvic tumours, malignant tumours of genitals, genital anomalies. The method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications. Possible difficulties. Angiohysterosalpingography as a combined contrasting of pelvic vessels, uterine cavity and fallopian tubes. The method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications. Lymphography as determination of the lymphatic system state via X-ray contrast agents. The method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications. Phlebography as determination of the pelvic venous network state via contrast agents. The method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications. Studying this topic involves theoretical work in the classroom, work in the radiological room of a medical institution (according to the cooperation agreement with the University), provided that there are no quarantine restrictions. Mastering skills to read radiographs.

Topic 7. Hardware research methods in gynaecology. Ultrasound of the uterus and appendages

Practical class 7: “Hardware research methods in gynaecology. Ultrasound of the uterus and appendages” (full-time)

Ultrasonography in gynaecology as a method based on the ability of tissues of different densities to reflect or absorb ultrasound energy in different ways. Modern ultrasound equipment in examination of pelvic organs via various transducers: abdominal, vaginal, rectal. Ultrasound use to differentiate between uterine and ovarian neoplasms and to diagnose ectopic pregnancy. High information content, appropriate diagnosis, simplicity of examination and absence of contraindications as method advantages. Method disadvantages. Specific features of the patient’s preparation for examination. Studying this topic involves theoretical work in the classroom, work in the ultrasound diagnostic room of the medical institution (according to the cooperation agreement with the University), provided that there are no quarantine restrictions.

Topic 8. Hardware research methods in gynaecology. Computed tomography

Practical class 8: “Hardware research methods in gynaecology. Computed tomography” (full-time)

Computed tomography as a method of obtaining cross-sectional body images without superimposing objects. Diagnostics using computed tomography based on radiological symptoms: location, shape, size, tightness of tumour masses; compression or growth of surrounding tissues, condition of lymph nodes. Principles of computed tomography. Method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications. Studying this topic involves theoretical work in the classroom, work in the computed tomography room at the University Clinic. Decoding of computed tomography scans.

Topic 9. Endoscopic examination methods in gynaecology

Practical class 9: “Endoscopic examination methods in gynaecology” (full-time)

Examination of internal organ cavities via special lighting devices. Gynaecology, laparoscopy, hysteroscopy, culdoscopy, colposcopy, cystoscopy, rectoromanoscopy, diaphonoscopy, etc. The method effectiveness. Advantages and disadvantages of the method. Use indications and contraindications. Studying this topic involves theoretical work in the classroom, work in the simulation centre (office hysteroscopy simulator), work in the operating room of the medical institution (according to the cooperation agreement between the clinical medical institution and the University), provided that there are no quarantine restrictions.

Topic 10. Endoscopic methods of research in gynaecology. Colposcopy. Cervicoscopy

Practical class 10: “Endoscopic examination methods in gynaecology. Colposcopy. Cervicoscopy” (full-time)

Colposcopy as examination of the cervix and vaginal mucosa via a colposcope. Colposcopy in detecting changes of the cervical epithelium, pre-tumour conditions; selecting a tissue section for biopsy; observing dynamic treatment changes of the cervix and vagina. Necessary equipment and tools for colposcopy. Technique of simple and advanced colposcopy. Schiller test. The concepts of adequate and inadequate colposcopic picture. Colposcopic signs LSIL, HSIL. Advantages and disadvantages of the method. Use indications and contraindications. Cervicoscopy as examination of the cervical canal with a cervicoscope through a colposcope. Advantages and disadvantages of the method. Use indications and contraindications. Studying this topic involves theoretical work in the classroom, work with a colposcope in the cervical pathology room of a medical institution (according to the cooperation agreement between the clinical medical institution and the University), provided that there are no quarantine restrictions. Evaluation of colposcopic images.

Topic 11. Endoscopic methods of research in gynaecology. Hysteroscopy

Practical class 11: “Endoscopic examination methods in gynaecology. Hysteroscopy” (full-time)

A method of examining the uterine cavity via a hysteroscope. Indications for hysteroscopy. Office hysteroscopy. Hysterorectoscopy. Tools and equipment for hysteroscopy. Methods of hysteroscopy and effective anaesthesia. Advantages and disadvantages of the method. Control over the treatment effectiveness before carrying out surgical interventions and manipulations in the uterine cavity. Features of hysteroscopy in case of dysfunctional uterine bleeding, bleeding during menopause, possible uterine fibroids, adenomyosis and endometrial cancer, uterine abnormalities. Polypectomy, excision of septa and synechiae in the uterine cavity, removing foreign bodies and intrauterine devices from the uterine cavity using hysterectoscopy. Possible complications of hysteroscopy. Hysteroscopy contraindications: general infectious diseases, cardiovascular diseases, parenchymal organs, III-IV degree of vaginal secretion purity, acute female genital diseases. Studying this topic involves theoretical work in the classroom, work in the simulation centre (office hysteroscopy simulator), work in the operating room of the medical institution (according to the cooperation agreement between the clinical medical institution and the University), provided that there are no quarantine restrictions.

Topic 12. Endoscopic methods of research in gynaecology. Laparoscopy. Culdoscopy

Practical class 12: “Endoscopic examination methods in gynaecology. Laparoscopy. Culdoscopy” (full-time)

Examination of the abdominal cavity and pelvis via optical instruments through an incision in the anterior abdominal wall. Culdoscopy use for incision through the posterior vault. Laparoscopy use for differential diagnosis of uterine tumours and its adnexa, in case of suspicion of scleropolycystic disease, internal endometriosis, abnormalities of the internal genital organs, tuberculosis, ectopic pregnancy, as well as to clarify the causes of infertility and pain of unknown etiology. Laparoscopy contraindications. Special aspects of preparation for laparoscopic surgery. Necessary tools and equipment. Anaesthesia and technique of laparoscopic interventions. Possible difficulties during laparoscopy. Diagnosing injuries of anterior abdominal wall vessels, omentum, intestinal mesentery and intestinal wall. Technique of culdoscopy. Indications and contraindications. Studying this topic involves theoretical work in the classroom, work in the endoscopic centre of the University (practice skills on a laparoscopic simulator), work in the operating room of a medical institution (according to the cooperation agreement between the clinical medical institution and the University), provided that there are no quarantine restrictions.

Topic 13. Methods of laboratory diagnostics in obstetric practice. Biochemical screening programmes

Practical class 13: “Methods of laboratory diagnostics in obstetric practice. Biochemical screening programmes” (full-time)

General clinical and biochemical tests. Hormonal diagnostics of the first, second and third trimester of pregnancy. Examination for perinatal infections. Determination of the pregnant woman’s blood group, titer of anti-rhesus antibodies. Hormonal mirror. Smear for amniotic fluid leakage. Smears for microflora. Sampling technique. Biochemical markers of congenital malformations (chorionic gonadotropin, alpha-fetoprotein, estriol) at different stages of pregnancy. Their diagnostic value, median levels of these indicators. Studying this topic involves theoretical work in a classroom, work in a clinical laboratory, a geneticist’s office at a medical institution (according to a cooperation agreement with the University), provided that there are no quarantine restrictions.

Topic 14. Prenatal ultrasound diagnostics of congenital malformations of the fetus

Practical class 14: “Prenatal ultrasound diagnostics of congenital fetal malformations” (full-time)

Non-invasive methods of prenatal diagnosis. Ultrasound examination, principles, indications, timing, diagnosis effectiveness of various fetal diseases, placenta assessment. Strategy of ultrasound prenatal diagnostics. Timing of ultrasound screening. Modern possibilities of prenatal ultrasound diagnostics of congenital malformations. Optimal timing of ultrasound screening in obstetrics. Ultrasound fetoplacentometry. Doppler blood flow in the uterine artery, umbilical cord artery, fetal aorta, middle cerebral artery. Diagnostic criteria for blood flow disorders. Critical parameters of blood flow. Tactics of managing a pregnant woman with uteroplacental and fetal blood flow disorders. Indications for immediate delivery. Determination of the fetal biophysical profile. Studying this topic involves theoretical work in the classroom, work in the ultrasound diagnostics room of a medical institution (according to the cooperation agreement with the University), provided that there are no quarantine restrictions.

Topic 15. Cardiotocography

Practical class 14: “Cardiotocography” (full-time)

Fetal monitoring as a method of examining the fetal heartbeat and uterine tones. Indications, timing and technique of CTG. Equipment for CTG. The method effectiveness. Evaluation of results. Studying this topic involves theoretical work in the classroom, work in the departments of a medical institution (according to the cooperation agreement with the University), provided that there are no quarantine restrictions. Learning to evaluate the results of cardiotocography, to distinguish the norm from pathology.

Topic 16. Invasive methods of prenatal diagnosis

Practical class 16: “Invasive methods of prenatal diagnosis” (full-time)

General characteristics, indications and contraindications Methods of invasive prenatal diagnostics, timing of their implementation. Indications and contraindications for invasive prenatal diagnostics, possible complications after invasive diagnostics. Conditions for invasive diagnostics. Studying this topic involves theoretical work in the classroom, work in the departments of a medical institution (according to the cooperation agreement with the University), provided that there are no quarantine restrictions.

Topic 17. Methodology of invasive prenatal research methods

Practical class 17: “Methodology of invasive prenatal research methods” (full-time)

Indications, contraindications, conditions and technique of amniocentesis. Examination of amniotic fluid – levels of alpha-fetoprotein and sphingomyelin; examination of the optical density of amniotic fluid and bilirubin. Methods of chorionic biopsy, cordocentesis, placentocentesis, amniocentesis. Study of chorionic villi and placental cells (direct method, cultivation). Cultivation of amniocytes. Cordocentesis. Indications, contraindications, conditions and technique of cordocentesis. The method effectiveness. Instrumentation. Complications of cordocentesis. Analysis of the umbilical cord blood of the fetus. Studying this topic involves theoretical work in the classroom, work in the departments of a medical institution (according to the cooperation agreement with the University), provided that there are no quarantine restrictions.

Topic 18. Practice-oriented assessment.

Practical class 18: “Practice-oriented credit” (full-time)

Questions for the entire course “Functional diagnostic methods in obstetrics and gynaecology”: theory and test control. Course assessment. Summing up the results.

9. Teaching and learning strategy

8.1 Methods of teaching and learning. The course involves learning by:

ML1	Team-based learning (TBL)
ML2	Practice-oriented learning
ML3	Case-based learning
ML4	Research-based learning (RBL)
ML5	Experimental learning
ML6	E-learning

The training combines group classes and individual assignments. Compulsory learning activities include work on specific clinical cases, role-playing games, discussions, practical demonstrations and presentations. The course is taught using modern teaching methods (CBL, TBL). They contribute not only to developing professional skills, but also stimulate creative and scientific activity aimed at training practice-oriented specialists.

The course provides students with the following soft skills: GC 1. Ability to abstract thinking, analysis and synthesis. GC 2. Ability to learn and master modern knowledge. GC 3. Knowledge and understanding of the subject area and understanding of professional activities. GC 4. Ability to adapt and act in a new situation. GC 5. Ability to make informed decisions. GC 6. Ability to use information and communication technologies. GC 7. Ability to apply knowledge in practical situations. GC 8. Determination and perseverance in relation to tasks and responsibilities. To be able to use the basic methods of functional diagnostics in obstetric and gynaecological practice. Learning how to choose the right diagnostic method from a large number of different types of examinations in obstetrics and gynaecology that are necessary for disease differentiation.

9.1 Types of learning activities

LA1	E-learning (e.g. Google Classroom, Zoom, YouTube)
LA2	Analysis and discussion of cases (educational/practical/research)
LA3	Performing a group practical task
LA4	Performing practical tasks

LA5	Evaluation and interpretation of research data
LA6	Conducting methodological research or observing a phenomenon

10. Assessment methods and factors

10.1. Assessment criteria

Definition	Four-point national grading scale	Rating point grading scale
Excellent performance with only a few errors	5 (excellent)	$170 \leq RD \leq 200$
Above average with a few errors	4 (good)	$140 \leq RD < 169$
Not bad, but with a lot of drawbacks	3 (satisfactory)	$120 \leq RD < 139$
Another taking tests is possible	2 (unsatisfactory)	$0 \leq RD < 119$

10.2. Methods of formative assessment

	Characteristics	Deadline, weeks	Feedback
MFA1 Peer assessment	Partnership interaction aimed at improving learning outcomes by comparing one's current level of performance with previous indicators. Provides an opportunity to analyze your own educational activities.	Throughout the entire period of studying the course	Adjustment of teaching approaches with students based on assessment results
MFA2 Intermediate assessment of the practical case (preparation, presentation, defence)	The case method helps to reveal and develop the qualities and abilities of medical students necessary for their future work. It develops clinical thinking, analytical skills, independence in decision-making, communication skills and working with a sufficiently large amount of information.	Throughout the entire period of studying the course	Oral comments from the teacher The student is given extra points (from 5 to 10) depending on the type of research project

MFA3 Teacher's guidance in the process of completing practical tasks	The guidelines describe the methods of pedagogical control over the professional activities of students. Efficiency is determined by compliance with all stages of practical tasks. The effectiveness of skill formation depends on the level of practical competence.	Throughout the entire period of studying the course	Advising students in working with patients. Direct and indirect observation of student work "at the bedside" with further determination of practical training levels
MFA4 Survey and oral comments from the teacher on its results	It provides an opportunity to identify the state of students' learning experience in accordance with the set goals. One finds out prerequisites for result formation, causes of difficulties. Also, you adjust the learning process, track dynamic learning outcomes and predict their development.	Throughout the entire period of studying the course	According to the obtained data on learning outcomes, based on their analysis, it is proposed to determine the grade as an indicator of achievements of students' learning activities
MFA5 Tests (automated tests) to monitor students' academic achievements	A method of effective testing of the level of knowledge, skills and abilities on each course topic. Testing allows you to check the mastery of educational material on each topic.	Throughout the entire period of studying the course	The student must provide 60% of correct answers, which is an admission to the practical part of the class
MFA6 Discussions in focus groups	The method allows all participants to engage in the process of discussing and justifying their own opinions through multilateral communication. One develops the ability to conduct a professional discussion, cultivates respect for colleagues and the ability to generate alternative ideas and proposals.	Throughout the entire period of studying the course	Assessment of the student's ability to work in a team. Ability to justify their decisions. Determination of theoretical training levels, which is reflected in the relevant grade

10.2 Methods of final summative assessment

	Characteristics	Deadline, weeks	Feedback
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<p>MSA1 Completion of a practical case (preparation, presentation, defence)</p>	<p>The case method helps to reveal and develop the qualities and abilities of medical students necessary for their future work. It improves clinical thinking, analytical skills, independence in decision-making, communication skills, working with a sufficiently large amount of information.</p>	<p>Throughout the entire period of studying the course</p>	<p>Assessment of student's ability to think clinically, justify their decisions, clearly express their thoughts, determine the level of theoretical training</p>
<p>MSA2 Intermediate module control</p>	<p>A method of effective testing of knowledge, skills and abilities in the course. Testing allows you to check the learning outcomes during the cycle and determine the level of knowledge at the end of the course.</p>	<p>Final computer test at the end of the course (10 points)</p>	<p>It is an admission to the test</p>
<p>MSA3 Performing situational exercises (preparation, presentation, defence)</p>	<p>It includes oral questioning, interpretation of laboratory and instrumental methods of examination, objective structured clinical examination of the patient, solving clinical individual and group cases, routine testing. Students involved in research activities have the opportunity to present results of their research at conferences, competitions of student research papers, etc. (incentive activities, additional points).</p>	<p>Throughout the entire period of studying the course</p>	<p>The result of each lesson is taken into account in the final grade for the practical class</p>
<p>MSA4 Implementation of a group research project (preparation, presentation, defence)</p>	<p>Method of effective testing of knowledge and skills in the course. Students who are involved in research activities have the opportunity to present the results of their own research at conferences, competitions of student scientific works, etc. (encouraging activities, additional points). That verifies the level of acquired knowledge and skills.</p>	<p>Throughout the entire period of studying the course</p>	<p>The result affects a comprehensive assessment for a practical class</p>

MSA5 Assessment of practical skills and manipulations	Comprehensive development of practical components in a safe simulation environment. It provides an opportunity to learn skills from a variety of medical emergencies.	In the last class, the student must successfully acquire practical skills	It is mandatory for admission to credit. Maximal points 80, minimal points 48
MSA6 Differential credit	That includes oral examination, interpretation of laboratory and instrumental examination methods, objective structured clinical examination of the patient, solution of clinical individual and group cases, ongoing testing. Students involved in research activities have the opportunity to present results of their own research at conferences, student research competitions, etc. (encouraging activities, additional points).	Throughout the entire period of studying the course	The learning result influences a comprehensive assessment for a practical lesson

Control measures:

		Maximal points	Minimal points	Retaking permission
Semester 9		200 points		
MSA1. Implementation of a practical case (preparation, presentation, protection)		20		
		20	10	No
MSA2. Intermediate module control		40		
		40	32	No
MSA3. Performance of situational exercises (preparation, presentation, protection)		20		
		20	10	No
MSA4. Implementation of a group research project (preparation, presentation, protection)		20		
		20	10	No
MSA5. Assessment of practical skills and manipulations		20		
		20	10	No
MSA6. Differential credit		80		

		80	48	No
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Course work: When mastering the course materials, the student is awarded a maximum of 5 points for each practical class (the score is given in the traditional 4-point rating system). At the end of the academic semester, the average arithmetic performance of a student is calculated. The maximal points that a student can receive in practical classes during the academic semester is 120. The points are calculated via the formula: the average arithmetic number of current grades is multiplied by 24. For example, if the arithmetic average of current grades is 3.0, then $3 * 24 = 72$. This sum of points is the minimum for admission to the credit. If the arithmetic average of current grades is 5.0, then $5 * 24 = 120$. This is the maximal sum of points a student can get for his performance. For a presentation or report, the same number of points is awarded for one current class. The student is allowed to credit if the curriculum requirements are met and if he has scored at least 72 points for the current educational activity. Final control: practice-oriented differentiated credit is performed according to the schedule at the semester end. Credit cards contain 3 theoretical questions on a variety of topics and cover all course sections (20 points each), 1 practical task (10 points) and test questions (10 points). Credit is completed if students score at least 48 out of 80 points. The score for final control is given in the traditional 4-point rating system with subsequent transfer. In general, “5” corresponds to 80 points, “4” – 64 points, “3” – 48 points, “2” – 0 points. The overall course assessment consists of the sum of points scored for the current performance and final control. The total score in the course cannot exceed 200 points.

11. Resource support of the course:

11.1 Learning tools:

LT1	Information and communication systems
LT2	Library resources
LT3	Computers, computer systems and networks
LT4	The simulation center. It is equipped with a phantom of a female pelvis, a training dummy for practical skills of laparoscopic intervention, suturing, dummies of individual organs (a uterus for practicing techniques of taking material for bacterioscopic examination). It also provides a set of tools: a Cusco mirror, a Simpson mirror with a retractor, a set of brushes, tongs, a uterine probe, etc.
LT5	Technological, instrumental, metrological, diagnostic, information means and equipment
LT6	Software (to support distance learning)
LT7	Municipal enterprise of the Sumy Oblast Council “Regional Clinical Perinatal Center”

11.2 Information and methodological support

Main literature:

1	Акушерство і гінекологія: підручник: у 2-х кн. Кн.2 Гінекологія / В. Б. М. Венцківський, М. О. Щербина, В. І. Грищенко [та ін.] ; – 3-тє вид., випр. – К.: Медицина, 2020. – 376 с
2	Williams Obstetrics, 25th Edition, Study Guide 25th Edition by Shivani Patel, Scott Roberts, Vanessa Rogers, Ashley Zink, Elaine Duryea, Jamie Morgan. USA. Mc. Graw Hill Education. 2021. 1340 p
3	William Gynecology, Fourth Edition by Barbara L. Hoffman, John O.Schorge, Lisa M. Halvorson, Cherine A. Hamid, Marlen M. Corton, Joseph I. Schaffer. Mc Graw-Hill Education. New York. 2020. 1253 p
Additional reading:	
1	Еталони практичних навичок з акушерства та гінекології. Навчальний посібник Вдовиченко Ю.П., Шкіряк-Нижник З.А., Жилка Н.Я., Марченко А.М., Романенко Т.А., Синчук Л.М, Непочатова-Курашкевич Е.І., Сілина Н.К. К: - 2014. – 56 с
2	Н. Лигирда. Практична кольпоскопія. 2-е видання, доповнене. -К.: ТОВ "Поліграф плюс". 2020. 280 с
3	Акушерство та гінекологія : у 4-х т.: національний підручник / ред. В. М. Запорожан . - Київ : ВСВ Медицина, 2013 - 2014. - ISBN 978-617-505-257-0. Т. 4 : Оперативна гінекологія / В. М. Запорожан [та ін.]. - 2014. - 695 с
4	Te Linde's Operative Gynecology. Twelfth edition. Victoria L. Handa, Linda Van Li. Hardcover edition. New York. 2019. 339 p
5	Методичні вказівки з циклу тематичного вдосконалення "Гістероскопія" [Текст] : лікарів-інтернів, лікарів-курсантів, акушерів-гінекологів, а також студентів спеціальності 222 "Медицина" / І. М. Нікітіна. — Суми : СумДУ, 2022. — 101 с.