

Federal State Autonomous Educational Institution of Higher Education
«Peoples' Friendship University of Russia»

Medical Institution

Recommended MCSD

SYLLABUS
(STUDY GUIDE)

Subject

Traumatology and Orthopedy

Recommended for the direction of training (specialty)

31.05.01 General Medicine

Program (profile, specialization)

General Medicine

1. **Goals and tasks of discipline:** the purpose for traumatology and orthopedy learning is forming scientific knowledge and, basing on them, possibility to diagnose trauma and disorders of muskulo-skeletal system, performing initial medical and specialized treatment, how to perform disease prophylaxis involving following study and professional activity.

2. **Discipline in structure of GP: S-3:**

The discipline of Traumatology and orthopedics belongs to the basic part of block 1 of the curriculum.

Table 1 shows the previous and subsequent disciplines aimed at the formation of the discipline's competencies in accordance with the competence matrix of the GP: S-3:

Previous and subsequent disciplines aimed at the formation of competencies

№ п/п	The cipher and the name of the competence	Previous disciplines	Subsequent disciplines (groups of disciplines)
General professional competencies			
	OPC-4	Physics, radiation diagnostics, general surgery, medical rehabilitation, neurology, neurosurgery, Faculty surgery, Urology, Endocrinology, Oncology	Maxillofacial surgery, endoscopic urology
Professional competencies (type of professional activity medical activity)			
	PC-1, PC -2, PC -3.	Life safety, physics, immunology, pathophysiology, propaedeutics of internal diseases, radiation diagnostics, general surgery, topographic anatomy and operative surgery, dermatovenerology, neurology, neurosurgery, psychiatry, otorhinolaryngology, ophthalmology, disaster medicine, faculty therapy, faculty surgery, urology, occupational diseases, hospital therapy, endocrinology, polyclinic therapy, anesthesiology, intensive care, intensive care, hospital surgery, oncology, dentistry	Pediatrics, maxillofacial surgery, sectional course, biotechnology, medical elementology, allergology

3. Requirements for the results of mastering the discipline:

The process of studying the discipline is aimed at the formation of the following competencies:

Emerging competencies

Competencies	Name of the competence	Indicators of competence achievement
OPC-4	He is able to use medical devices provided for by the procedure for providing medical care, as well as to conduct examinations of the patient in order to establish a diagnosis.	OPC -4.1 Be able to use medical devices in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, assistance taking into account the standards of medical care. OPC -4.2 Be able to evaluate the effectiveness and safety of the use of medical devices. OPC -4.3 Possess the technique of performing typical medical manipulations using medical devices provided for by the procedures for providing medical care.
PC-1	Capable of providing medical assistance to the patient in urgent or emergency forms.	PC -1.1. Is able to assess the condition of a patient who requires medical care in emergency or emergency forms. PC -1.2. Is able to recognize conditions that occur during sudden acute diseases, exacerbation of chronic diseases without obvious signs of a threat to the patient's life and requiring urgent medical care. PC -1.3. Is able to provide emergency medical care to patients with sudden acute diseases, conditions, exacerbation of chronic diseases without obvious signs of a threat to the patient's life. PC -1.4. Is able to recognize conditions that pose a threat to the patient's life, including conditions of clinical death (stopping of vital functions of the human body (blood circulation and / or respiration) that require emergency medical care. PC -1.5 is able to provide emergency medical care to patients with conditions that pose a threat to the patient's life, including clinical death (stopping vital functions of the human body (blood circulation and / or respiration). PC -1.6. Is able to use medicines and medical devices when providing medical care in emergency or urgent forms.

PC -2	Capable of performing an examination of the patient in order to establish a diagnosis.	<p>PC -2.1. Has the skills to collect complaints, anamnesis of the patient's life and illness, as well as to conduct a complete physical examination of the patient (examination, palpation, percussion, auscultation).</p> <p>PC -2.2. Is able to formulate a preliminary diagnosis and make a plan for laboratory and instrumental examinations of the patient</p> <p>PC -2.3. Is able to send the patient for a laboratory examination if there are medical indications in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care.</p> <p>PC -2.4. Is able to refer the patient for an instrumental examination if there are medical indications in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care.</p> <p>PC -2.5. Is able to refer the patient to a consultation with specialist doctors if there are medical indications in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care.</p> <p>PC -2.6. Is able to refer a patient for specialized medical care in inpatient conditions or in a day hospital if there are medical indications in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care.</p> <p>PC -2.7. Is able to perform differential diagnostics with other diseases/conditions, including urgent ones, as well as to establish a diagnosis taking into account the current international statistical classification of diseases and health-related problems (MCB).</p>
PC-3	Capable of prescribing treatment and monitoring its effectiveness and safety.	PC -3.1. Is able to develop a treatment plan for a disease or condition, taking into account the diagnosis, age and clinical picture in accordance with the current procedures for providing medical care,

		<p>clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care</p> <p>PC -3.2. Is able to prescribe medicines, medical devices and medical nutrition, taking into account the diagnosis, age and clinical picture of the disease and in accordance with the current procedures for providing medical care, clinical recommendations (treatment protocols) on the provision of medical care, taking into account the standards of medical care</p> <p>PC -3.3. Able to assign non-pharmacological treatment according to diagnosis, age and clinical picture of the disease in accordance with the applicable procedures of medical care, clinical recommendations (treatment protocols) on the provision of medical care to standard medical care</p> <p>PC -3.4. Able to evaluate the efficacy and safety of medicinal products, medical devices, clinical nutrition and other therapies</p> <p>PC -3.5. Able to provide palliative care in collaboration with physicians and other health care professionals.</p> <p>PC -3.6. Is able to organize personalized treatment of the patient, including pregnant women, elderly and senile patients, to evaluate the effectiveness and safety of treatment.</p>
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(indicate in compliance with FGES3+ HPE)

In the end of learning the discipline student must know:

Know: *modern classification, clinical finding, methods of examination (measuring of length of extremities, measuring of range of motion, palpation, load tests) of fractures and disorders of muskulo-skeletal system. Osteosynthesis of the long bones. Arthroplasty and arthroscopy of the big joints.*

Can: *describe status of the patient. Take anamnesis morbis, inquiry, examination, define general condition of the patient for make decision on medical care. Select additional method of examination (x-ray, CT, MRI, US) for more precise diagnosis. Define a plan of treatment (conservative or operative). To write the medical report.*

To be able: *_perform initial medical care for patient with orthopedic trauma (hemostasis, application of tourniquet, application of spinning hemostatic dressing to a wound, blockade at the fracture site, transport splintage)*

4. The amount of discipline and types of study.

Total labor intensiveness consists in 6 examination units.

Types of study	Total hours	Terms			
		10	11		
Classes (total)	216	108	108		
Including:	-	-	-	-	-
Lectures					
Practical training (PT)					
Seminars (S)					
Workshops (W)	136	68	68		
In interactive way (IW)	32				
Individual studies (total)	80	40	40		
Including:	-	-	-	-	-
Course work					
Settlement and graphic work					
Library-research paper/medical report	10	5	5		
<i>Other types of individual studies</i>	70	35	35		
Types of intermediate examination (test, exam)		Test	Exam		
Total labor intensiveness	Hour	216			
	Ex. U.	6	3	3	

5. Discipline content.

5.1 Content of discipline chapters.

(The content is indicated in didactic units. At the discretion of the developers, the material may not be presented in the form of a table)

№ п/п	Name of discipline chapter	Content of chapter
1.	Basic principles of adult and infant trauma.	History of traumatology and orthopedy deelopment. Types of trauma and trauma care organization. Methods of

		evaluation. Basic principles of treatment in traumatology and orthopedy. Bone tissue regeneration.
2.	Injury of the hip joint and femur	Proximal and diaphyseal femoral fractures. Classification, clinical findings and treatment.
3.	Injury of the knee joint, the shin and the foot.	Posttraumatic sinovitis, hemarthrosis. Meniscal impairment, knee ligaments disorders. Patella dislocations. Patella fractures. Intraarticular fractures of femoral and tibial condyles. Clinical findings, diagnostics. Treatment. Arthroscopy in treatment injuries of the knee.
4.	Injury of the upper extremity	Injuries of the scapula. Injuries of the clavicle. Dislocation of the clavicle. Fractures of the humeral bone. Injuries of the elbow joint. Fractures, fractures-dislocation of the forearm bones. Fractures of the distal metaphys of the radius. Fractures and dislocations bones of the hand. Clinical findings, diagnostics, treatment.
5.	Open, complicated, gunshot fractures	Features of the medical care on pre-hospital and hospital stages. Traumatic shock. Thromboembolism. Fat embolism. Clinical findings. Prophylaxis.
6.	Combined, associated, and polytrauma. Craniocerebral trauma.	Polytrauma.. Classification. Treatment on the evacuation stage. Cuncussion, contusion of the brain. Craniocerebral hematomas. Clinical findings, diagnostics, treatment.
7.	Injuries of the spine.	Dislocations and fractures of the vertebral bodies. Compression fractures. Complicated fractures Clinical findings, diagnostics, treatment.
8.	Injuries of the pelvis	Marginal fractures. Fractures of the pelvic ring. Fractures of the acetabulum. Complicated fractures of the pelvis. Clinical findings, diagnostics, treatment.
9.	Injuries of the thorax	Fractures of the sternum (breast bone). Fractures of the ribs. Hemo-, pneumothorax. Clinical findings, diagnostics, treatment.
10.	Deforming arthrosis, arthritis	Primary, secondary deforming arthrosis of large joints. Rheumatoid, gout, psoriatic arthritis. Clinical findings,

		diagnostics, treatment.
11.	Arthroplasty	Modern types of implants of large joints. Friction pair. Cement cementless endoprosthesis. Indication, contraindication, complication.
12.	Osteochondrosis.	Clinical findings, diagnostics, treatment, prophylaxis. . Spondylolisthesis. Spondilodesis.
13.	Deformations of the musculoskeletal system.	Deformity of the foot. Valgus deformity of the 1st toe. Planovalgus foot. Varus, valgus deformity of the shin. Treatment of posttraumatic deformities of the long bones.
14.	Tumors of the bones.	Tumors of the cartilage. Tumors of the bone tissue. Soft tissue tumors. Clinical findings, treatment.
15.	Osteochondropathies.	Legg-Calve-Perthes disease, Konig disease, Osgood-Schlatter disease, Kienböck's disease, Calvet disease, Scheuermann-Mau disease, Keller osteochondropathy 1,2. Clinical findings, diagnostics, treatment.
16.	Pediatric orthopedics.	Congenital muscular torticollis. Clubfoot. Clubhand. Osteogenesis imperfecta. Clinical findings, diagnostics, treatment.
17.	Tuberculosis of bones and joints, poliomyelitis.	Tuberculosis of the joints, tuberculous spondylitis. Clinical findings, diagnostics, treatment. Treatment of paralytic foot.
18.	Osteoporosis. Modern standpoint on this problem and treatment.	Violation of mineral metabolism of bone tissue. Clinical findings, treatment. Осложнения остеопороза Complications of the osteoporosis. Actual treatment of the osteoporosis. Complications of osteoporosis.

5.2 Chapters of disciplines and types of lessons

№ п/п	Name of discipline's chapter	Lect.	Prac. Tr.	Wor ksh.	Semin	Ind. Stud.	Total hours
1.	Anatomical and functional description of the bone tissue. Conception of trauma. Trauma types.		3				3
2.	Dislocations and fractures of the bones and joints. Causes, classification,		3				3

	clinical findings. Treatment principles. Complications and treatment of complications.						
3.	Associated and polytrauma. Craniocerebral trauma. Injuries of the thorax and abdominal cavity. Diagnosis, treatment approach.		4				4
4.	Inflammatory and degenerative diseases of the joints. Classification. Orthopedic treatment. Arthroplasty.		2				2
5.	Injuries and diseases of the spine. Diagnosis, classification. Mains methods of conservative and operative treatment of the spine's pathology.		1				1
6.	Congenital diseases and defroming of musculoskeletal system. Orthopedic treatment of consequences of cerebral spastic infantile paralysis (CSIP) and poliomyelitis.		2				2
7.	Malignant and non-malignant diseases of bone and chondral tissues. Classification. Dominant clinicoradiological characters. Treatment approach.		2				2
8.	Septic complications in traumatology and orthopedy. Treatment approach. Modern tendency in treatment of bones infection.		2				2
9.	Violation of mineral metabolism fo bone tissue. Bone grafting. Osteoporosis. Clinical findings, diagnosis, treatment.		2				2

5.3 Description of interactive lessons.

№п/п	№ chapter of the discipline	Subject of interactive lesson	Type of lesson	Labor intensiveness (hours)
1.		<p>Principles of pediatric and adult traumatology.</p> <ol style="list-style-type: none"> 1. History of traumatology and orthopedy development. 2. Bone tissue regeneration. 3. Types of trauma and trauma care organization. 4. Methods of evaluation. Basic principles of treatment in traumatology and orthopedy. 5. Treatment features in different age groups. 	<p>Round-table discussion, debates, presentations, case-study (situation analysis), brainstorm</p>	2
2.		<p>Injuries of the hip joint and femur.</p> <ol style="list-style-type: none"> 1. Fractures of the head and neck of the femur. 2. Fractures of trochanterian part of the femur. 3. Fractures of the acetabulum. 4. Soft tissue injuries of the hip. 	<p>Round-table discussion, debates, presentations, case-study (situation analysis), brainstorm</p>	2
3.		<p>Disorders of kne-joint, ankle, foot.</p> <ol style="list-style-type: none"> 1. Fractures of the bones of knee-joint (paraarticular and intraarticular condyles fractures of femur and tibia, patella fractures). 2. Knee-joint soft-tissue disorders (ligament injury, meniscal injury, 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2

		<p>cartilage lesions).</p> <ol style="list-style-type: none"> 3. Bone and soft-tissue damage of shin (diaphyseal, metaepiphyseal fractures, bumper fractures, Achilles tendon rupture). 4. Trauma of ankle-joint (ankle fractures, talar-bone fractures, ligaments disorders and cartilage lesions). 5. Trauma of heel-bone, metatarsal and tarsal bones, phalanxes, soft-tissue foot disorders. 		
4.		<p>Upper-extremities traumas.</p> <ol style="list-style-type: none"> 1. Scapula, clavicle, humeral disorders, humeral-joint soft-tissue disorders (fractures and dislocations of clavicle, fractures of the body, neck and scapula processes, fractures of humeral head, neck and diaphysis, glenoid labrum impairment, rotator cuff, tendon and muscle disorders of humeral region). 2. Bone and soft-tissue injuries of elbow (para and intraarticular fractures of humer, fractures of ulna and coronoid process, capital fractures of radius). 3. Forearm and wrist bone and soft-tissue disorders (forearm bone fractures, wrist fracture-dislocations). 4. Bone and soft-tissue hand trauma (hand 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2

		bones fractures and dislocations, hand tendons and muscles impairment).		
5.		<p>Open, complicated and shoot fractures.</p> <ol style="list-style-type: none"> 1. Open and shoot fractures. 2. Complicated fractures (fractures with inner organs damage, neuro-vascular damage, infected fractures). 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2
6.		<p>Polytrauma, multiple trauma, combined trauma.</p> <ol style="list-style-type: none"> 1. Polytrauma. 2. Multiple trauma. 3. Combined trauma. 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2
7.		<p>Spinal injuries. Brain injury.</p> <ol style="list-style-type: none"> 1. Spinal injuries (vertebra fractures and dislocations, vertebra arcs and processes injury on different levels). 2. Close brain injury. 3. Open brain injury. 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2
8.		<p>Thoracic and pelvic injuries.</p> <ol style="list-style-type: none"> 1. Isolated pelvic injuries (pelvic column fractures, combination with pelvic inner organs injuries). 2. Isolated and combined thoracic bone fractures (rib fractures, hemo-pneumothrax, heart injury, mediastinum organ injuries). 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2

9.		<p>Osteoarthrosis, oostearthritis.</p> <ol style="list-style-type: none"> 1. Osteoarthrosis of big and small joints, posttraumatic osteoarthrosis. 2. Specific and non-specific arthriris (septic, rheumatoid arthritis). 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2
10.		<p>Arthroplasty.</p> <ol style="list-style-type: none"> 1. Hip arthroplasty . 2. Knee and shoulder arthroplasty. 3. Big joints arthroplasty. 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2
11.		<p>Osteochondrosis.</p> <ol style="list-style-type: none"> 1. Degenerative spine diseases. 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2
12.		<p>Skeletal deformities.</p> <ol style="list-style-type: none"> 1. Spine deformities. 2. Low extremity deformities. 3. Upper extremity deformities. 4. Thoracic deformities. 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2
13.		<p>Skeletal tumors.</p> <ol style="list-style-type: none"> 1. Benign skeletal tumors. 2. Malign skeletal tumors. 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2

14.		<p>Child orthopedy.</p> <ol style="list-style-type: none"> 1. Hip dysplasia. 2. Congenital lower extremities deformities. 3. Congenital upper extremities deformities. 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2
15.		<p>Tuberculosis, poliomyelitis.</p> <ol style="list-style-type: none"> 1. Tuberculosis, tuberculosis spondylitis. 2. Poliomyelitis. 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2
16.		<p>Osteoporosis. Modern opinion and treatment.</p> <ol style="list-style-type: none"> 1. Osteoporosis. Mineral supply disorders. Clinic, diagnosis. 2. Osteoporosis complications. 3. Modern concept for osteoporosis treatment. 	<p>Round-table, discussion, debates, computer presentations, Case-study (analysis of case situations and reports), brain-storm</p>	2

6. Laboratory work

№	№ type of discipline	Name of laboratory work	Hours
1.			
2.			
...			

7. Practical work (seminars)

№	№ type of discipline	Name of practical seminars	Hours
1.			
2.			
...			

8. Material and technical support of the discipline:

(the material and technical base necessary for the implementation of the educational process in the discipline (module) is described).

Skeletal model (bones, joints)

Artificial bones

Metal devices for osteosynthesis (blocking and non-blocking intramedullary nail, plates DCP, LCP, screws, external fixation devices (Ilizarov, Volkov-Oganesyan device, rod devices and other)

X-rays, CT X-rays, MRI images

Computers, multimedia projectors, screen for projection

9. Educational and methodological support of the discipline:

(specify the list of information technologies used in the implementation of the educational process in the discipline (module), including a list of software and information reference systems (if necessary))

a) software. _____

b) resources of the Internet information and telecommunications network "internet":

1. EBS of RUDN and third-party EBS, to which university students have access on the basis of concluded contracts:

- Electronic library system of RUDN-EBS RUDN <http://lib.rudn.ru/MegaPro/Web>
- EBS "University Library Online" <http://www.biblioclub.ru>
- EBS Yurayt <http://www.biblio-online.ru>
- EBS "Student Consultant" www.studentlibrary.ru
- EBS "Doe" <http://e.lanbook.com/>

2. Databases and search engines:

- electronic Fund of legal and normative-technical documentation <http://docs.cntd.ru/>
- search engine Yandex <https://www.yandex.ru/>
- Google search engine <https://www.google.ru/>
- bibliographic database SCOPUS <http://www.elsevierscience.ru/products/scopus/>
- WHO Documentation Center <http://whodc.mednet.ru/>

10. Educational and methodological support of the discipline:

(the availability of printed and electronic educational and information resources is indicated)

a) basic literature:

- Traumatology [Electronic resource]: National guidelines. Short edition / Edited by G. P. Kotelnikov, S. P. Mironov. - M.: GEOTAR-Media, 2017. - 528 p. - ISBN 978-5-9704-4221-0. (Link to the document: http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=475687&idb=0).
 - Traumatology and orthopedics [Electronic resource]: Textbook / Edited by N. V. Kornilov. - 3rd ed., additional and re-edited-Moscow: GEOTAR-Media, 2016. - 592 p. - ISBN 978-5-9704-3895-4. (Link to the document: http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=475837&idb=0).
 - Traumatology and orthopedics [Electronic resource]: Textbook / Edited by N. V. Kornilov. - 3rd ed., additional and re-edited-Moscow: GEOTAR-Media, 2016. (Link to the document: http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=464704&idb=0).
 - Traumatology [Electronic resource]: Textbook / G. P. Kotelnikov, V. F. Miroshnichenko. - M.: GEOTAR-Media, 2015. - 288 p. - ISBN 978-5-9704-3573-1. (Link to the document: http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=475686&idb=0).
 - Damage and Fracture Mechanics [Electronic resource]: Contributed volume / B. Taoufik, E. Mimoun, P. Guy. - Electronic text data. - : Springer Netherlands, 2009. - System requirements: Windows XP and higher. - ISBN 978-90-481-2669-9. (Link to the document: http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=327316&idb=0).
- B) additional literature:
- Diagnosis and treatment of fractures of the proximal femur in elderly and senile people [electronic resource]: educational and methodological manual / N. V. Zagorodniy [et al.]. - electronic text data. - Moscow: Publishing House of RUDN, 2012. - 18 p.: ill. - ISBN 978-5-209-04249-5. (Link to the document: http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=380679&idb=0)
 - Endoprosthesis of large human joints [Text/electronic resource]: Textbook / N. V. Zagorodniy, E. Sh. Lomtadze; RUDN; N. V. Zagorodniy et al. - Moscow: Publishing House of RUDN, 2008. - 134 p.: ill.- (Priority national project "Education": A complex of export-oriented innovative educational programs in priority areas of science and technology). - Application: CD ROM (Electr.resource). - 51.89. (Link to the document: http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=287944&idb=0).
 - Surgical treatment of deformities and degenerative diseases of the spine in children and adults [Text/electronic resource]: Textbook / A. A. Laka; RUDN; A. A. Laka et al. - Moscow: Publishing House of RUDN, 2008. - 190 p.: ill.- (Priority national project "Education": A complex of export-oriented innovative educational programs in priority areas of science and

technology). - Application: CD ROM (Electr.resource). - 69.19. (Link to the document: http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=287811&idb=0).

- Modern methods of bone osteosynthesis in acute injury of the musculoskeletal system [Text/electronic resource]: Textbook / M. A. Abdulkhabirov, N. V. Zagorodny; RUDN; N. V. Zagorodny- et al. - M.: Publishing House of RUDN, 2008. - 222 p.: ill.- (Priority national project "Education": A complex of export-oriented innovative educational programs in priority areas of science and technology). - Application: CD ROM (Electr.resource). - 79.32. (Link to the document: http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=287947&idb=0).

- Technique of preoperative planning of hip replacement [Text/electronic resource]: Methodological recommendations for orthopedic traumatologists / N. V. Zagorodny [et al.]. - Electronic text data. - Moscow: Publishing House of RUDN, 2014. - 31 p.: ill. - ISBN 978-5-209-06157-1 : 52.2. (Link to the document: http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=434000&idb=0).

- Innovative technologies in pelvic fractures management [Text]: article in English / E. I. Solod [et al.] // Bulletin of the Peoples ' Friendship University of Russia: Medicine. - 2016. - No. 4. - pp. 37-46. (Link to the document: http://lib.rudn.ru/MegaPro/UserEntry?Action=Rudn_FindDoc&id=466721&idb=0).

11. Methodological guidelines for students on the development of the discipline (module).

(it includes methodological guidelines for the organization and implementation of the SRS when studying the discipline, defines the requirements and conditions for completing tasks).

For example: methodological guidelines for the implementation of practical work; recommendations for completing tasks on the topics (sections) passed; recommendations for the design of calculation, graphic works; recommendations for the implementation and design of abstracts, essays; methodological manuals, instructions and recommendations for the implementation of control works, course projects(works); recommendations for preparing for certification tests, etc.

The study of the discipline is organized according to the point-rating system adopted at the university with the use of appropriate laboratory equipment, computers, multimedia installations.

The student's independent work includes:

- Study of the material according to the textbook, textbooks on paper and electronic media.
- Preparation of an abstract message on a selected topic in the form of a presentation.
- Preparation for the implementation of control works and test tasks.

Current control.

The control of knowledge and the success of mastering the curriculum in full-time training is carried out in the form of an oral survey.

Management control.

The passage of each section ends with a boundary control of knowledge in the form of a test and an oral interview with the student. In the process of the boundary control, the student must show his knowledge of the passed topic, skills and abilities. The attendance of classes is also monitored.

Final control (Intermediate certification).

The final control of knowledge is carried out in the form of a test (in the 10th semester) and an exam (in the 11th semester). The test is carried out in the form of testing and an oral interview. The exam is taken in the form of an oral interview with the student. The student must demonstrate knowledge of the morphology of typical pathological processes and diseases, primary pathological reactions, the development of cause-and-effect relationships in the pathology of the whole organism, the importance of the reactivity of the organism in the occurrence, development and outcome of typical pathological processes and diseases, the laws of pathogenesis and sanogenesis of typical pathological processes and diseases, the stages of development of typical pathological processes and diseases, their complications and outcomes, syndromes and symptoms of the most common diseases, the principles of etiotropic, pathogenetic and symptomatic treatment of typical pathological processes and diseases. Also, during the exam, the student is required to be able to accurately diagnose the study of macro- and micro-preparations. In addition, the student must demonstrate the skills of solving clinical problems on the exam.

Final control-the exam (intermediate certification) is carried out in 1 stage:

The oral exam is conducted on tickets, in which there are 3 questions and a situational task.

A partial list of questions of the final certification in the discipline.

Examination questions for all sections of the discipline:

1. Reparative regeneration of bone tissue (process phases, primary and secondary fracture healing).
2. Fractures of the spine. Types of spinal fractures. Diagnosis and treatment.
3. Deforming arthrosis of the knee joint. Classification. Types of conservative and surgical treatment.
4. Basic principles of fracture treatment.

5. Dislocations and subluxations of the cervical vertebrae. Diagnosis and treatment, prevention of complications.
6. Types of conservative treatment of fractures. Indications and contraindications. Methods of conservative treatment.
7. Fractures of the scapula and the articular process of the scapula. Diagnosis and treatment.
8. Types of hip replacements and their fixation.
9. Types of surgical treatment of fractures. Relative and absolute stability.
10. Types of knee joint endoprotheses. Indications and contraindications for their use.
11. Features of fractures in children.
12. Traumatic dislocations of the shoulder. Clinic and diagnostics. Methods of reduction. Principles of treatment.
13. Corrective operations in the knee joint area.
14. Bone fractures in the elderly and features of their treatment.
15. Habitual dislocation of the shoulder. Methods of surgical treatment.
16. Congenital deformities of bones and joints.
17. Congenital torticollis. Clinic. Methods of treatment.
18. Rupture of the biceps tendon of the shoulder and the clavicular-acromial joint. Types of surgical treatment.
19. Congenital clubfoot. Diagnostics, methods of treatment.
20. Congenital dislocation of the hip. Diagnostics.
21. Traumatic shock. Etiology, pathogenesis. Stages of shock. Treatment.
22. Congenital dislocation of the hip. Types of conservative and surgical treatment.
23. Blood loss during injuries and traumatological and orthopedic operations. Methods of replenishing blood loss.
24. Aseptic necrosis of the femoral head. Clinic, diagnostics. Types of surgical treatment.
25. Prevention and treatment of thromboembolism in orthopedic and traumatological patients.
26. Tuberculosis of bones and joints. Clinic, diagnosis and treatment.
27. Intramedullary osteosynthesis of long tubular bones, types of fixators. Indications, contraindications, types, complications.
28. Fractures and dislocations of the wrist bones. Diagnosis and treatment.
29. Benign tumors of bones and joints. Classification.
30. Bone osteosynthesis of long tubular bones, types of fixators. Indications, types, complications.
31. Malignant tumors of bones and joints. Classification. Diagnosis and treatment.
32. injuries to the tendons of the hand. Diagnosis and treatment of Types of tendon sutures.

33. Extra-focal osteosynthesis with compression-distraction devices. Indications. Types of external fixation devices.
 34. Spondylolisthesis. Clinic, diagnosis, treatment.
 35. Perthes ' disease. Clinic, diagnosis and treatment.
 36. Valgus deformity of the first toe. Types of surgical treatment.
 37. Arthroscopy of the knee joint. Indications, the technique of the operation.
 38. Complications of hip replacement. Prevention. Treatment.
 39. Complications of conservative and surgical treatment of fractures. Prevention. Treatment.
 40. Long-term compression syndrome (crush syndrome). Clinic. Diagnosis, treatment.
 41. Slow-fusing, non-fused bone fractures. Diagnosis and treatment.
 42. Features of the treatment of gunshot bone fractures.
 43. Torticollis. Diagnosis and treatment.
 44. Methods of measuring the length of the limbs and the volume of movement in the joints.
 45. Open bone fractures. Features of treatment. Prevention of complications.
 46. Traumatic brain injury. Diagnosis and treatment.
 47. Fractures of the proximal femur. Classification. Clinic, diagnosis, treatment.
 48. Dupuytren's contracture. Etiology, pathogenesis, methods of surgical treatment.
- Et al.

An example of an exam task for a discipline.

An 84-year-old patient fell at home three hours ago. A history of myocardial infarction, violation of cerebral circulation with right-sided hemiparesis. On examination: the left lower limb is rotated outwards, shortened by 3 cm. Pain during palpation in the area of the left hip joint. Your actions.

12. The fund of evaluation funds for conducting intermediate certification of students in the discipline (module) *(developed and issued in accordance with the requirements of the "Regulations on the formation of the foundations of assessment tools (FOS)", approved by order of the rector of the 05.05.2016 No. 420).*

(The list of competencies, indicating the stages of their formation; description of the indicators and criteria of assessment of competencies at different stages of their formation, the description of the scales of assessment; typical assignments or other documents necessary for the assessment of knowledge, skills and (or) experience activities that characterize the stages of formation of competences in the process of development of the educational program;

The funds of evaluation funds for the discipline are presented in the educational and methodological complexes developed to support this educational program.

The funds of evaluation tools include: standard tasks; control works; tests and control methods (test, exam) that allow you to evaluate knowledge, skills and the level of acquired competencies, etc. The set of evaluation tools is determined by the teacher individually.

Test tasks and control works are grouped according to the main sections of the course and are used in the classroom, as well as as an integral part of the intermediate and final control of students ' knowledge during control works, tests and exams.

Examples of tests for the current control:

1. Fractures of the distal part of the shin bones (pylon) are characterized by
A. long-lasting edema
B. the appearance of epidermal blisters
B. good venous outflow
G. Rapid wound healing
2. The patella is woven into the thickness
of A. Biceps muscle
B. Triceps muscle
B. Quadriceps muscle
3. In case of a fracture of the distal femur, the distal fragment is deflected posteriorly due to the traction
of A. the quadriceps muscle
B. the tailor's muscle
B. the calf muscle
4. According to the AO classification, the fracture 33 B2 is
A. intra-articular fracture of the external condyle of the femur
B. intra-articular fracture of the internal condyle of the femur
B. intra-articular fracture of the femoral condyles in the frontal plane (Goff fracture)
5. At what level is the division of the sciatic nerve into the tibial and common fibular nerves
A. Upper third of the thigh
B. Middle third of the thigh
B. Lower third of the thigh
6. The cervical-diaphyseal angle of the hip is greater
in A. Children

B. The elderly

7. The medial wall of the calcaneus:

A. Thicker than the lateral

one B. The neurovascular bundle

passes near B. The tendons of the extensors of the fingers pass near

8. When the pylon is broken, if the foot is in the position of plantar flexion,

A. fracture of the anterior edge of the tibia

B. fracture of the posterior edge of the tibia

B. comminuted fracture of the articular surface

9. In fractures of the inner condyle of the tibia with displacement

, A. varus displacement of the tibia

B. valgus displacement of the tibia is noted

10. According to the classification of AO fracture 41 B is

A. extra-articular fracture of the proximal tibia

B. extra-articular fracture of the proximal femur

B. incomplete intra-articular fracture of the proximal tibia

G. complete intra-articular fracture of the proximal tibia

2. Examples of exam tasks

A task.

A 40-year-old patient was admitted to the clinic 1.5 hours after he was hit by a car. Objectively: cp/3 deformity of the left hip, pathological mobility, pain during palpation of this area. There is a wound of 0.5x1.0 cm on the antero-internal surface of the cp/3 of the left thigh, there are no neurological and vascular disorders of the left lower limb. On R-gr. comminuted fracture cp/3 of the left femur with displacement. Your actions.

12.1. Point-rating system (BRS) for assessing students' knowledge in the discipline

To assess the quality of the development of the curriculum, a point-rating system (BRS) and ECTS assessments are used.

Points are accumulated by students in the course of training sessions, ongoing monitoring of academic performance and intermediate certification during each semester. An academic discipline is considered mastered if the student has scored more than 50% of the possible number of points. The maximum score for a discipline studied during one semester is 100 points, regardless of its volume.

A student does not receive these credits if during his studies, working with a teacher and independently, he scores less than 51 points (out of 100 possible) for each semester.

	Spinal injuries. TBI	2,5	2,5	13	+	+	18	
	Injuries to the pelvis, chest	2,5	2,5	+	+	+	5	
	Summary of the topics of the section "traumatology"	2,5	2,5	+	+	10	25	
OCC	test							5
	TOTAL	25	25	26	9	10	95	100

11th semester

Chapter	theme	Survey (total)	Working in classes (including interactive ones)	Implementation of the KR	Execution of the abstract/HD		Test	Topic scores	Section points
Orthopedics	Deforming arthrosis	2,5	2,5	+	+	+	+	5	
	Arthritis, diseases of the synovial membranes	2,5	2,5	+	+	+	+	5	
	Endoprosthetics of large joints	2,5	2,5	+	+	+	+	5	
	Osteochondrosis. Kyphoscoliotic deformities of the spine	2,5	2,5	13	+	+	+	18	
	Congenital deformities of the musculoskeletal system. Children's orthopedics	2,5	2,5	+	+	+	+	5	

	Acquired deformities of the musculoskeletal system, false joints	2,5	2,5	+	+	+	+	5	
	Oncoortopedia	2,5	2,5	+	+	+	+	2	
	Arthroscopy of large joints	2,5	2,5	13	+	+	+	18	
	Tuberculosis, polio, osteoporosis	2,5	2,5	+	+	+	+	5	
	Summary of the topics of the section "orthopedics"	2,5	2,5	+	+	10	+	5	
OCC									5
	TOTAL	25	25	26	9	10		95	100
							100		

Evaluation criteria:

(in accordance with the current regulatory framework)

Compliance of assessment systems (previously used assessments of final academic performance, ECTS assessments and the point-rating system (BRS) of current academic performance assessments).

The final grade calculated based on the results of mastering the discipline in two semesters and on the results of the intermediate certification (exam) according to the table is put in the credit card:

BRS points	Traditional assessments in the Russian Federation	Points for translating grades	Evaluations	ECTS scores
86 - 100	5	95 - 100	5+	A
		86 - 94	5	B
69 - 85	4	69 - 85	4	C
51 - 68	3	61 - 68	3+	D
		51 - 60	3	E
0 - 50	2	31 - 50	2+	FX
		0 - 30	2	F

Description of ECTS grades:

A ("Excellent") - the theoretical content of the course has been fully mastered, without gaps, the necessary practical skills of working with the mastered material have been formed, all the training tasks provided for in the training program have been completed, the quality of their performance is estimated by the number of points close to the maximum.

B ("Very good") - the theoretical content of the course is fully mastered, without gaps, the necessary practical skills of working with the mastered material are mainly formed, all the training tasks provided for in the training program completed, the quality of most of them is estimated by the number of points close to the maximum.

C ("Good") - the theoretical content of the course is fully mastered, without gaps, some practical skills of working with the mastered material are not sufficiently formed, all the training tasks provided for in the training program are completed, the quality of performance of none of them is estimated by the minimum number of points, some types of tasks are completed with errors.

D ("Satisfactory") - the theoretical content of the course has been partially mastered, but the gaps are not significant, the necessary practical skills of working with the mastered material have been mainly formed, most of the training tasks provided for in the training program have been completed, some of the completed tasks may contain errors.

E ("Mediocre") - the theoretical content of the course has been partially mastered, some practical work skills have not been formed, many of the training tasks provided for in the training program have not been completed, or the quality of some of them is estimated by the number of points close to the minimum.

FX ("Conditionally unsatisfactory") - the theoretical content of the course has been partially mastered, the necessary practical skills of work have not been formed, most of the training tasks provided for in the training program have not been completed or the quality of their performance is estimated by the number of points close to the minimum; with additional independent work on the course material, it is possible to improve the quality of performing training tasks.

F ("Certainly unsatisfactory") - the theoretical content of the course has not been mastered, the necessary practical work skills have not been formed, all the completed training tasks contain gross errors, additional independent work on the course material will not lead to any significant improvement in the quality of the training tasks.

The program is compiled in accordance with the requirements of FSES HE.

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