



**EDUCATIONAL TRAINING PROGRAM OF DISCIPLINE**  
**“GENERAL SURGERY”**

the main professional educational program of higher education - specialty program in the specialty 31.05.01 General Medicine, approved, May , 24, 2023

Form of education	Full-time
The period of development	6
Department of	surgical diseases No. 1

When developing an educational training program, the discipline is based on:

1. Federal State Educational Standard of Higher Education on specialty 31.05.01 General Medicine, approved by the Ministry of Education and Science of the Russian Federation on February, 09, 2016 №95
2. Academic plan on specialty 31.05.01 General Medicine,  
ЛД-16-04-18 ИИ  
ЛД-16-05-19 ИИ  
ЛД-16-06-20 ИИ,  
approved by the Scientific Council of the Federal State Budgetary Educational Institution of Higher Education «North-Ossetia State Medical Academy» of the Ministry of Healthcare of the Russian Federation “24” May 2023, Protocol № 8.

The educational training program of the discipline was approved at a meeting of the central coordinating training and methodological council from “23” May 2023, Protocol №. 5

The educational training program of the discipline was approved by the Scientific Council of the State Medical University of the Federal State Budgetary Educational Institution of Higher Education «North-Ossetia State Medical Academy» of the Ministry of Healthcare of the Russian Federation from “24” May 2023, Protocol № 8.

**Developers:**

docent Beslekoev U.S.

professor of the department  
Doctor of Medical Sciences

Khutiev Ts. S.

**Reviewers:**

Head of the Department of Finance..ksurgical diseases No. 2  
Professor

Totikov V. Z.

FSBEIMD Chechen State University  
Medical Institute  
professor of the edry department  
Faculty of Surgery

Aishkhanov S. K..

### **Content of the work program**

1. Name of the discipline;
2. a list of planned results of training in the discipline, correlated with the planned results of mastering the educational program;
3. indication of the place of the discipline in the structure of the educational program;
4. the volume of the discipline in credit units with an indication of the number of academic or astronomical hours allocated for contact work of students with the teacher (by type of training sessions) and for independent work of students;
5. the content of the discipline is structured according to topics (sections) with an indication of the number of academic or astronomical hours allocated to them and the types of training sessions.
6. the list of educational and methodological support for independent work of students in the discipline;
7. fund of assessment environments for conducting intermediate certification of students in the discipline;
8. a list of basic and additional educational literature required for mastering the discipline;
9. the list of resources of the information and telecommunication network " Internet "(hereinafter referred to as the "Internet" network) required for mastering the discipline;
10. methodological guidelines for students on mastering the discipline;
11. a list of information technologies used in the implementation of the educational process in the discipline, including a list of software and information reference systems (if necessary);
12. description of the material and technical base necessary for the implementation of the educational process in the discipline.
13. Conducting educational activities using e-learning and distance learning technologies.

**2. The list of planned results of training in the discipline and the results of mastering the educational program:**

p/ no.	Compete ncenumb er/ index	Content of the DISCIPLINE (or part of it)	As a result of studying the academic discipline, students should::			
			Toknow	Beableto	Own	Evaluationt ools
1	2	3	4	5	6	7
1.	PC-5	Asepsis. Antiseptics.	Methods of research of surgical patients and their role in the modern clinic of surgical diseases (general examination, examination of complaints and anamnesis, objective and instrumental studies, ultrasound scanning, X-ray diagnostics, laboratory research methods ,CT AND MRI scans	Conduct an external examination of the patient with a surgical profile O, form the medical history and outpatient card of the surgical patient.	Perform examination, medical history, palpation, percussion, and auscultation of the surgical patient. Interpretationof laboratoryresult s.	Oral survey, testing, writing, individual homework assignments, visual control of the teacher.
2.	PC-9	Bleeding and stopping the bleeding. Bloodtransfusion. Donation.	Methods of preparation of instruments andногоматери dressings for sterilization, typesof sterilization - dry and cold, types of laying of dressing material, methods of treatment of the surgeon's hands, treatment of the operating field,	Prepare theinstrumentsand dressing material for sterilization, prepare and place the dressing material, treat the hands before the operation, and apply various types of antiseptics.	Methods of preparing instruments and dressings for surgery, preparing the patient for planned and emergency interventions, know the methods of antiseptics and their rational combination	Oral survey, testing, writing, individual homework assignments, visual control of the teacher.

			types of antiseptics.			
3.	PC-3  GPC-4	The doctrine of pain. Pain relief. Inhaled anesthesia. Non-inhalation anesthesia.  Surgical operation. Pre-and post-operational period.	Clinical manifestations of surgical diseases of infectious nature, methods of laboratory and instrumental diagnostics, principles of treatment, prevention of the occurrence of the disease.	To investigate the objective status of a surgical patient, to diagnose the most common surgical diseases and to carry out their prevention.	Perform examination, medical history, palpation, percussion, and auscultation of the surgical patient. Interpretation of laboratory results, instrumental data, and measures to prevent surgical diseases.	Oral survey, testing, writing, individual homework assignments, visual control of the teacher.
4.	PC-1,	Desmurgia. Fractures, dislocations.	Anatomical and physiological features of the structure of various organs and tissues. Principles of comprehensive assessment of the clinical picture, physical examination data and laboratory research methods in the diagnosis of surgical diseases, methods of their prevention and treatment.	Possess and know the methods of clinical examination of a surgical patient, palpation and percussion methods, and auscultation. Interpretation of the results of clinical and instrumental examinations. Performing basic medical and diagnostic manipulations.	Making a preliminary diagnosis of common diseases and injuries. Making a decision on the following medical tactics. General principles of treatment of various surgical diseases.	Oral survey, testing, writing, individual homework assignments, visual control of the teacher.

5.	PC-6	Wounds, treatment of wounds. Surgical infection. Sepsis.	Anatomical and physiological features of the structure of various organs and tissues. Principles of comprehensive assessment of the clinical picture, physical examination data and laboratory research methods in the diagnosis of surgical diseases, methods of their prevention and treatment. Prevention of surgical diseases.	Possess and know the methods of clinical examination of a surgical patient, palpation and percussion methods, and auscultation. Interpretation of the results of clinical and instrumental examinations. Performing basic medical and diagnostic manipulations. To own methods of treatment of the surgeon's hands and instruments, apply antiseptic types separately and in combination, to perform a test for the determination of blood group and the compatibility test, the choice of a rational method of anesthesia, the ability to provide first aid, application of bandages in different areas of the body, the ability to recognize the disease caused by anaerobic microorganisms and treatment data of patients, specific surgical infection and methods of its treatment.	Making a preliminary diagnosis of common surgical diseases and injuries. To identify the connection of the general pathological process in the patient's body with the disease of the affected organ (tissue), give medical recommendations. Making a decision on the following medical tactics. General principles of treatment of the diagnosed disease.	Oral survey, testing, writing, individual homework assignments, visual control of the teacher.
6.	PC-10	Thermal damage. Burns and	Principles of comprehensive	Conduct research on a systematic	Providing first aid and deciding	Oral survey, testing,

		frostbite. Urgent conditions.	assessment of the clinical picture, data from physical examination and instrumental, as well as laboratory research methods in the diagnosis of surgical diseases, methods of their treatment. Clinical, diagnostic and therapeutic injuries of various organs.	basis, diagnose, prevent and treat identified surgical diseases, provide emergency care for acute conditions, оказывайте first aid for penetrating wounds of the body cavities, and for various types of burns.	on subsequent medical tactics for inflammation, burns, blunt and penetrating injuries. By applying bandages.	writing, individual homework assignments, visual control of the teacher.
--	--	----------------------------------	---	---	--	--

### 3. Place of the discipline in the structure of the educational program

The discipline "general surgery" belongs to the basic part of the program of Block 1 of the Federal State Educational Standard MD Medical business. C theides of professional activity that underlie the teaching of this discipline:

1. medical;
2. organizational and managerial support.
3. scientific and research organization

#### 4. Scope of the discipline

Type of academic work		Total hours/ credits	Semesters	
			5	6
			hours	hours
1		2	3	4
<b>Classroom activities (total), including:</b>		110	80	30
Lectures (L)		26	20	6
Practical exercises (PZ),		84	60	24
Seminars (C)				
Laboratory work (LR)				
<b>Independent work of the student (SRS), including:</b>		34	28	6
<i>Medical history (IS)</i>				
<i>Coursework (KR)</i>				
<i>Abstract (Ref)</i>				
<i>Calculation and graphic works (RGR)</i>				
<i>Preparing for class (PZ)</i>				
<i>Preparation for routine monitoring (PTK))</i>				
<i>Preparation for interim control (ACC))</i>				
<b>Type of intermediate certification</b>	credit (3)			
	exam (E)	36-36	-	36
<b>TOTAL: Total labor</b>	intensity per hour.	180	108	72
	Z	5	3	2

#### 5. Content of the discipline:

n/	n semestra	Name of the discipline section	Types of educational activities, including independent work of students (in hours)					Current performance monitoring forms ( <i>by semester week</i> )
			L	LR	PZ	SRS	total	
1	2	3	4	5	6	7	8	9
I.	5	In water activity	2		2		4	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
2.	5	Asepsis (Part I)	2		4	2	8	Test tasks, situational tasks, independent homework, teacher's survey, visual control, research papers.
3.	5	Asepsis (Part II)			4		4	Test tasks, situational tasks, independent homework, teacher's survey, visual



								control, research papers.
4.	5	Antiseptics	2		4	2	8	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
5.	5	Bleeding and stopping of bleeding	2		4	2	8	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
6.	5	Bloodtransfusion	2		4	2	8	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
7.	5	Donation and other sources of blood for transfusion. Preservation and storage of blood.			4		4	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
8.	5	The doctrine of pain. Pain relief. Inhalationanesthesia.	2		4	2	8	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
9.	5	Non-inhalationanesthesia			4	2	6	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
10.	5	Desmurgia			4	2	6	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
11.	5	Opendamage. Rany.	2		4	2	8	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
12.	5	Treatmentofwounds.	2		4	2	8	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
13.	5	Closedsofttissueinjuries.	2		4	2	8	Test tasks, situational tasks, independent homework, teacher's survey, research papers.

14.	5	Fractures of bones and dislocations of joints.			2	2	4	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
15.	5	Transportimmobilization.			2	2	4	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
16.	5	Thermal damage. Frostbite, electrotrauma, atmospheric electric shock. Firstaidforinjuries.	2		4	2	8	Test tasks, visual control, and research papers.
17.	5	Urgentconditions.			2	2	4	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
18.	6	General questions of surgical infection.	2		2	2	6	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
19.6	6	Aerobicinfection.			2		2	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
20.	6	Certain types of purulent infection. Anaerobicinfection.			2		2	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
21.	6	Acutespecificinfection.			2		2	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
22.6	6	Surgicalsepsis.			2		2	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
23.6	6	Surgicaltuberculosis.			2		2	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
24.	6	Generalquestionsaboutncologistsand.	2		2	2	6	Test tasks, situational tasks, independent homework, teacher's

								survey, research papers.
25.	6	Disorders of limfo- icrovoobrasheniya			2		2	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
26.	6	Anomalies and malformations	2		2		4	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
27		Polyclinic service in the structure of surgical care for patients			2		2	Test tasks, situational tasks, self-help homework, teacher's survey, research papers.
28.	6	Examination of surgical patients			2	2	4	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
29.6	6	Surgical operation. Pre-and post-operational period.			2		2	Test tasks, situational tasks, independent homework, teacher's survey, research papers.
30.	6	Summing up the results of the year, preparing for the exam					36	Medical history, research papers.
		total	26		84	34	180	

#### 6. List of educational and methodological support for independent work of students in the discipline

n / p	semester	Name of educational and methodical development
1	5,6	"Purulent surgery" training manual for students of the head of the Department. of DMT Beslekoev U. S. prof. Khutiev Ts. S. Associate Professor Vakhotsky V. V. Associate Professor Ardasenov T. B. ass Dzakhov V. R.; ass Kesaonov A.. Kh
2	5,6	"Panaritias and phlegmons of the brush" проф Prof. Sazhin prof M. S. Alekseev
3	5,6	"General issues of oncology" Associate Professor Beslekoev U. S. prof. Khutiev Ts. S.
4	5,6	"Fundamentals of damage surgery" Prof. Khestanov A. K. Ardasenov T. B.
5	5,6	"MEDICAL HISTORY" Head of the Department. of DMT Beslekoev U. S. prof. Khutiev Ts. S. Associate Professor Vakhotsky V. V. Associate Professor Ardasenov T. B. ass Dzakhov V. R.; ass Naniev B. L..

### 7. Evaluation Environment Fund for intermediate attestation of students in the discipline

No. /p	List of competencies	No semestra	Indicator(s) ratings	Критерии Evaluation criteria	Ratings scale	Name of the feedback
form 1	2	3	4	5	6	7
1	GPC-4 PC-1 PC-3 PC-5 PC-6 PC-9 PC-10	5,6	cm. standard for assessing the quality of education, approved by the Ministry of Education of the Russian Federation. By Order of the Federal State Budgetary Educational Institution of Higher Education of SOGMA of the Ministry of Health of the Russian Federation No. 264/o of the Federal State Budgetary Educational Institution of Higher Education SOGMA of the Ministry of Health of the Russian Federation dated 10.08.2018 No. 264/o dated 10.07.2018	7.2018. standard for assessing the quality of education, approved by the Ministry of Education of the Russian Federation. By Order of the Federal State Budgetary Educational Institution of Higher Education of SOGMA of the Ministry of Health of the Russian Federation No. 264/o of the Federal State Budgetary Educational Institution of Higher Education SOGMA of the Ministry of Health of the Russian Federation dated 10.08.2018 No. 264/o dated 10.07.2018	7.2018. standard for assessing the quality of education, approved by the Ministry of Education of the Russian Federation. By Order of the Federal State Budgetary Educational Institution of Higher Education of SOGMA of the Ministry of Health of the Russian Federation No. 264/o dated 10.07.2018	Exam tickets for the test; Test tasks. Control tasks

### 8. List of basic and additional educational literature required for mastering the discipline

#### Main literature:

p/ no.	Name	Author (s)	Year and place of publication	Number of copies	
				in-the library	on kaphedra

				у	
1	2	3	4	7	8
1.	Общая хирургия. Учебник с компакт-диском	Гостищев В.К.	М.: ГЭОТАР-Медиа, 2006, 2010, 2015.	176 10	3
				«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970422816.html">http://www.studmedlib.ru/book/ISBN9785970422816.html</a>	
2.	Общая хирургия. Учебник для вузов с компакт-диском	Петров С.В.	М.: ГЭОТАР-Медиа, 2006, 2007, 2009, 2012, 2014.	98 97 6 4	3
				«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785982161190.html">http://www.studmedlib.ru/book/ISBN9785982161190.html</a>	
	Руководство к практическим занятиям по общей хирургии :учебное пособие (на англ.яз.)	Гостищев В. К.	М. : ГЭОТАР-Медиа, 2006	36	

**Additional literature:**

p/ no.	Name	Author (s)	Year and place of publication	Number of copies in the library	at the department
1	2	3	4	7	8
1.	Общая хирургия: учебник в 2 т.	Рычагов Г.П. Гарелик П.П.	Минск: Высшая школа, 2008	T.1-1 T.2.1	
2.	Атлас амбулаторной хирургии	Ред. В. Томас	М.: ГЭОТАР-Медиа, 2009	1	1
3.	Общая хирургия: учебник	Ред. В.Я. Зубарев	СПб.: СпецЛит, 2004	6	1
4.	Поликлиническая хирургия: учебное пособие.	Ред. В.Я. Горбунков	Ставрополь: СтГМА, 2011	10	1
5.	Инфекции в хирургии: руководство для врачей	Гостищев В.К.	М.: ГЭОТАР-Медиа, 2007	4	1

6.	Хирургические болезни: учебник	Под ред. М.И. Кузина	М.: Медицина, 2006	110	2
7.	Практикум по курсу общей хирургии	Ред. Зубарев В.С.	СПб.: Фолиант, 2004г.	1	2
8.	Предоперационный период. Предоперационная оценка. Подготовка к плановым хирургическим вмешательствам: руководство	Ред. В.В. Самойленко	М.: ГЭОТАР-Медиа, 2009	«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785970413234.html">http://www.studmedlib.ru/book/ISBN9785970413234.html</a>	
9.	80 лекций по хирургии	Ред. С.В. Савельев	М.: Литтерра, 2008	«Консультант студента» <a href="http://www.studmedlib.ru/book/ISBN9785982161190.html">http://www.studmedlib.ru/book/ISBN9785982161190.html</a>	
10.	General surgery : the manual	Gostishchev V. K.	М. : Geotar-Media, 2015	1	

### 9. The list of resources of the information and telecommunication network "Internet" required for mastering the discipline:

[http://www.studmedlib.ru/ru/book/ISBN9785970422816.html?SSr=4701339e70107a8eb7fa543biblso\\_gma](http://www.studmedlib.ru/ru/book/ISBN9785970422816.html?SSr=4701339e70107a8eb7fa543biblso_gma)  
[http://www.studmedlib.ru/ru/book/ISBN9785970425749.html?SSr=4701339e70107a8eb7fa543biblso\\_gma](http://www.studmedlib.ru/ru/book/ISBN9785970425749.html?SSr=4701339e70107a8eb7fa543biblso_gma)  
[http://www.studmedlib.ru/ru/book/ISBN9785970428887.html?SSr=4701339e70107a8eb7fa543biblso\\_gma](http://www.studmedlib.ru/ru/book/ISBN9785970428887.html?SSr=4701339e70107a8eb7fa543biblso_gma)  
[http://www.studmedlib.ru/ru/book/06-COS-2356.html?SSr=4701339e70107a8eb7fa543biblso\\_gma](http://www.studmedlib.ru/ru/book/06-COS-2356.html?SSr=4701339e70107a8eb7fa543biblso_gma)  
[http://www.studmedlib.ru/ru/book/ISBN9785970415382.html?SSr=4701339e70107a8eb7fa543biblso\\_gma](http://www.studmedlib.ru/ru/book/ISBN9785970415382.html?SSr=4701339e70107a8eb7fa543biblso_gma)  
[http://www.studmedlib.ru/ru/book/ISBN9785970411131.html?SSr=4701339e70107a8eb7fa543biblso\\_gma](http://www.studmedlib.ru/ru/book/ISBN9785970411131.html?SSr=4701339e70107a8eb7fa543biblso_gma)  
[http://www.studmedlib.ru/ru/book/ISBN9785970412503.html?SSr=4701339e70107a8eb7fa543biblso\\_gma](http://www.studmedlib.ru/ru/book/ISBN9785970412503.html?SSr=4701339e70107a8eb7fa543biblso_gma)  
[http://www.studmedlib.ru/ru/book/ISBN9785970413234.html?SSr=4701339e70107a8eb7fa543biblso\\_gma](http://www.studmedlib.ru/ru/book/ISBN9785970413234.html?SSr=4701339e70107a8eb7fa543biblso_gma)

### 10. Methodological guidelines for students on mastering the discipline

– The training consists of contact work (110 hours), including a lecture course and practical exercises, and independent work (34 hours). Academic year identified is on the practical work students acquisition of knowledge in the field of General surgery, the development of basic skills in surgery (practical skills), teaching students the skills that allow diagnosis and treatment of patients with acute and chronic surgical pathology, teaching students the recognition of pathological changes in organs at survey of the patient, in determining the severity of the pathological process, the students

ability to identify the signs, symptoms and syndromes of surgical diseases teaching students the choice of optimal methods of examination in surgical diseases and the construction of the algorithm of differential diagnosis; teaching students the choice of optimal schemes of pathogenetic treatment for conditions that require the emergency surgical care

Practical exercises are. It is presented in the form of answers to tests, an oral survey, demonstration of video films on the topic being studied, use of visual aids, and solving situational problems. In accordance with the requirements of the Federal State Budget BOB Active and interactive forms of conducting classes (videos, situational tasks, and independent extracurricular work) are widely used in the educational process. The share of classes conducted in interactive forms is at least 20% of classroom classes.

Independent work of students involves preparing the formation of a systematic approach to the analysis of medical information, including the study of additional literature, work with medical documentation, writing a medical history.

Each student is provided with access to the library collections of the Academy and the department. During the study of the discipline, students are present at operations, participate in patient visits.

The student's work in a group creates a sense of teamwork and sociability.

#### 11. List of information technologies used in the implementation of the educational process in the discipline

Term	Occupation type L, PR, S,	Educational technologies used (active, interactive)	Number of hours	% of interactive classes	List of software
5,6	L	Set of slides, videos for a traditional lecture	26		Microsoft Office PowerPoint; Internet Explorer
5,6	PZ	A set of questions and tasks for a practical task, a set of situational tasks for emergency situations, and a set of case histories for analyzing clinical cases.	84	20	Microsoft Office
5,6	With	Questions and tasks for independent work	34		Microsoft Office Internet Explorer

## 12. Description of the material and technical base necessary for the implementation of the educational process in the discipline

The material and technical base of the department is represented by

Technical Specifications	
1. Study Room # 1	of department 12 sq.m
2. Study Room #2	.13 sq. m
3. Lab assistant's room	. 16 sq. m.
4. Lecture hall	126 sq. m
5. Corridor of the training section	. 22 sq. m
6. Cloakroom	. 2.5 sq. m
7. Corridor	. 20 sq. m
8. Study room #4	. 20 sq. m
9. Study room #3	. 18 sq. m
10. Office of the head.каф.	. 31 sq. m.

### Material and technical support of the discipline

1. Use of wards.
2. Technical means:
  - 1) A laptop the condition is satisfactory
  - 2) The projector needs to be replaced
3. Thematic tables needs to be replaced
4. Photo camera
5. Radiographs the condition is satisfactory
6. CT scans out of stock
7. Ultrasound images out of stock
8. Demo monitor the condition is good
9. Personal computer the condition is good
10. Laser pointer needs to be replaced
11. Set of surgical instruments need to be replaced
12. Dummies need to be replaced
13. Transport immobilization tires and medical condition is satisfactory
14. Harnesses, Esmarch rifle out of stock
15. bandages, gauze, cotton wool out of stock
16. Operating gowns and bed linen out of stock
17. Blood type detection kits by ABO system and Rh factor not available
18. Blood pressure monitors out of stock
19. phonendoscopes out of stock
20. Trays 2 satisfactory condition
21. Disposable syringes are not available
22. Laryngoscope 2 needs to be replaced
23. The intubation tube needs to be replaced



### **13. Conducting educational activities using e-learning and distance learning technologies.**

In the context of the introduction of restrictive measures (quarantine) associated with an unfavorable epidemiological situation, the threat of the spread of a new coronavirus infection, and other force majeure events that do not allow conducting face-to-face training sessions, it is possible to study this discipline or part of it using e-learning and distance educational technologies.

Teaching the discipline in the situations described above will be carried out through the development of an electronic course with access to video lectures and interactive course materials: presentations, articles, additional materials, tests and various tasks. When conducting training sessions, current monitoring of academic performance, as well as intermediate certification of students, platforms of the electronic information and educational environment of the academy and/or other e-learning systems recommended for use in the academy, such as Moodle, Zoom, Webinar, etc. can be used.

Lectures can be presented in the form of audio-, video files, "live lectures", etc.

Seminars and practical classes can be held on-line, either synchronously or asynchronously. Seminars can be held in the form of webconferences.