MINISTRY OF EDUCATION AND SCIENCE OF UKRAINE

I. Horbachevsky Ternopil National Medical University

of the Ministry of Health of Ukraine

**TRAINING PROGRAM**

**«GENERAL MEDICINE»**

**Second (Master’s) Level of Higher Education**

**Specialty 222 Medicine**

**Branch of Knowledge 22 Health Care**

**Qualification: Master’s Degree in Medicine. Physician**

**APPROVED BY THE ACADEMIC BOARD OF**

**I. HORBACHEVSKY TERNOPIL NATIONAL MEDICAL UNIVERSITY**

**OF THE MINISTRY OF HEALTH OF UKRAINE**

**Head of the Academic Board**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ /Prof. M. Korda**

**(Minutes № \_\_ dated \_\_\_\_\_\_\_\_\_\_ «\_\_», 20\_\_)**

**Training Program comes into effect on September 1, 2024**

**Rector of Higher Education Institution\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_/ Prof. M. Korda**

**(Order № \_\_ dated \_\_\_\_\_\_\_\_\_\_ «\_\_», 20\_\_)**

Ternopil – 2024

**AGREEMENT LETTER**

**of the training program**

«GENERAL MEDICINE»

**Second (Master’s) Level of Higher Education**

**Specialty 222 Medicine**

**Branch of Knowledge 22 Health Care**

**Educational Qualification: Master’s Degree in Medicine.**

**Professional Qualification: Physician**



Vice-Rector of Higher Education Institution

for Science and Education A. H. Shulhai



Dean of the Faculty of Medicine P. H. Lykhatskyi

**PREFACE**

A training program is a system of educational components of the appropriate level of higher education within the specialty, which determines the requirements for the level of training of persons who are allowed to study in this program, the orientation and main focus of the program, the list of educational components and the logical sequence of their study, the number of ECTS credits required for the implementation of this program, as well as the list of general and special (professional) competences, compulsory and elective content of specialist’s training, expressed in the learning outcomes and requirements for higher education quality control, which must be achieved by a student obtaining Master of Medicine degree.

The training program “General Medicine” of the second (Master’s) level of higher education, specialty 222 “Medicine”, branch of knowledge 22 “Health Care” was developed by a working group including:

1. Oleshchuk Oleksandra Mykhaylivna – DSc in Medicine, Professor, Head of the Department of Pharmacology and Clinical Pharmacology of I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.

2. Lykhatskyi Petro Hryhorovych – DSc in Biology, Professor, Professor of Higher Education Institution of the Department of Medical Biochemsitry of I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine, Dean of The Faculty of Medicine.

3. Fedoniuk Larysa Yaroslavivna – DSc in Medicine, Professor, Head of the Department of Medical Biology of I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.

4. Boyarchuk Oksana Romanivna – DSc in Medicine, Professor, Head of the Department of Children’s Diseases and Paediatric Surgery of I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.

5. Malanchuk Larysa Mykhailivna – DSc in Medicine, Professor, Head of the Department of Obstetrics and Gynaecology № 1 of I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.

6. Martynyuk Larysa Petrivna – PhD in Medicine, Associate Professor, Associate Professor of Higher Education Institution, Department of Emergency Medical Care of I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.

7. Vayda Andriy Romanovych – PhD in Medicine, Associate Professor, Associate Professor of Higher Education Institution, Department of Surgery № 2 of I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.

8. Smachylo Iryna Volodymyrivna – PhD in Medicine, Associate Professor, Associate Professor of Higher Education Institution, Department of Internal Medicine № 1 of I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine, Vice-Dean of the Faculty of Medicine.

9. Kucher Svitlana Viktorivna – PhD in Medicine, Associate Professor of Higher Education Institution, Department of Internal Medicine Propaedeutics and Phthisiology of I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine, Vice-Dean of the Faculty of Medicine.

10. Miroshnyk Viktoriia Andriiivna – 5th year student of the 222 “Medicine” training program of I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.

11. Panesar Avnish Pal – 6th year student of the 222 “Medicine” training program of I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine.

Reviews of external stakeholders:

|  |  |  |
| --- | --- | --- |
| Name of the organization, enterprise, etc | Position, scientific degree and academic title | Full name |
| Ternopil City Council | Head of the Health Care and Medical Provision Department | Danchak Vasyl Yaroslavovych |
| Municipal Non-Commercial Enterprise of the Velyki Birky Village Council “Ternopil Central District Hospital” | Head of the Surgical Department, Expert of the Health Care Department of the Regional Military Administration in the Areas “Surgery, Paediatric Surgery, Endoscopy”, PhD in Medicine, Associate Professor | Smachylo Ivan Ihorovych |

**1. Profile of the training program “General Medicine” in specialty 223 Medicine, branch of knowledge 22 “Health care”**

|  |  |
| --- | --- |
| **1 – General information** | |
| **Full name of the higher education institution and structural unit** | I. Horbachevsky Ternopil National Medical University of the  Ministry of Health of Ukraine  Faculty of Medicine |
| **Level of higher education and title of qualification in the original language** | Second level of higher education – Master;  Academic qualification – Master’s degree in Medicine;  Professional qualification – Physician |
| **Official name of the**  **training program** | General Medicine |
| **Type of diploma and**  **volume of training**  **program** | Master’s diploma, single diploma, the volume of the training program is 360 ECTS credits. Duration of studies – 5 years and 10 months. |
| **Availability of**  **accreditation** | Ministry of Education and Science of Ukraine.  Accreditation certificate of specialty “Medicine” Series UD No. 20011673, valid until July 1, 2026. |
| **Cycle/level** | Second (Master’s) level of higher education  (National Qualifications Framework of Ukraine – 7th level, FQ-EHEA – second cycle, ЕQF-LLL – 7th level) |
| **Prerequisites** | A person has the right to be enrolled for the first year on the basis of a complete general secondary education based on the results of the entrance tests provided for in the Conditions/Procedure of Admission of the relevant year of admission, which are conducted by the Ukrainian Centre for Educational Quality Assessment or another institution determined by the Ministry of Education and Science of Ukraine;  For the first year of study (second year with a normative term of study – based on the educational (educational and qualification) level of a bachelor, junior bachelor, specialist junior bachelor or junior specialist), the conditions of admission are determined by the Rules of Admission to I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine. |
| **Language(s) of instruction** | Ukrainian, English |
| **Duration of the training program** | September 01, 2024 – June 30, 2030 with annual review and update when needed |
| **Internet address of the permanent placement of the training program description** | https://www.tdmu.edu.ua/osvitni-programy/ |
| **2 – The purpose of the training program** | |
| To ensure the training of a highly qualified doctor who is able to apply the acquired knowledge, abilities, skills and understanding of general and professional training to solve the typical tasks in the field of health care in the relevant position, the scope of which is provided by the specified lists of syndromes and symptoms of diseases, emergency conditions, physiological, pathological conditions and diseases that require special patient management tactics; laboratory and instrumental research, medical manipulations; issues of labour, legal and military expertise. | |
| **3 – Characteristics of the training program** | |
| **Subject area (branch of knowledge, specialty)** | Specialty 222 Medicine, branch of knowledge 22 Health Care, multidisciplinary. General training disciplines – 21.1% (76 credits), professional training disciplines – 53.9% (194 credits), elective courses – 25% (90 credits) including 30 credits of practical training rotations.  The *object of the activity* is the prevention, diagnosis and treatment of human diseases; the impact of health problems on patients, their families and the population, health maintenance.  *Learning goals* is the development of the ability to apply the acquired knowledge, skills, abilities and understanding to solve typical and complex problems, including research and innovation, in the field of medicine, creating conditions for students for self-development, professional development, cultural and spiritual search, opportunities to build their individual educational pathway with the account of the principles of student-centred learning. Ability to continue learning with a high degree of autonomy.  *Theoretical content of the subject area*:  concepts, principles and theories of prevention, diagnosis and treatment of human diseases at the individual, family and population levels.  *Methods, techniques and technologies*:  anamnestic, clinical, laboratory, instrumental methods of diagnostic process implementation, determining the main symptoms and syndromes, determining the preliminary and clinical diagnosis; technologies of diagnosis, treatment and prevention, management and organization of work in the field of health care.  *Tools and equipment:*  modern diagnostic, therapeutic and other devices, items and devices for carrying out professional activities. |
| **Orientation of the training program** | The educational and professional program has an applied, practically-oriented nature of studying the theory and practice of medicine. |
| **The main focus of the training program** | Education in the branch of knowledge 22 Health Care, specialty 222 Medicine, knowledge of public health care, diagnosis, treatment, prevention of diseases, necessary for carrying out professional activities  Key words: medicine, physician, general medicine |
| **Peculiarities of the program** | Acquisition of general and professional competences defined in the program is implemented by combining theoretical and practical training with teaching in small student groups. The study of clinical disciplines and ensuring the development of special (professional) competences by those obtaining Master’s degree in the specialty 222 "Medicine" is carried out at the clinical departments of TNMU in accordance with the profile of the department and curricula. Professional training at clinical departments takes into account the specifics of each discipline and, in order to acquire professional competences, necessarily involves the use of simulation training methods, work with the use of diagnostic equipment and direct work at the patient’s bedside (in general, at least 50% of the classroom hours of the corresponding disciplines). Practical training and acquisition of practical skills is implemented through the introduction of an end-to-end simulation training program, including practice-simulation training with an emphasis on mastering basic and advanced resuscitation measures.  The program is implemented in Ukrainian and English. |
| **4 – Graduates’ suitability for employment and**  **further education** | |
| **Suitability for**  **employment** | The specialist is prepared to work according to SC 009-2010:  Section Q. Health care and social care  Chapter 86.1 Activities of hospital institutions  Group 86.10 Activities of hospital institutions  Class 86.21 General medical practice  Class 86.90 Other health care activities.  Upon completion of the program, the specialist is able to perform their professional activity as:  intern doctor (PC code 3229);  trainee doctor (PC code 3221);  resident doctor (PC code XXX).  After taking the course of internship, medical residency, and clinical residency, a specialist is awarded the qualification of a doctor of a certain specialty who is able to perform the professional activity specified in SC 003-2010 and can hold the corresponding medical position:  Chapter 2 Professionals  Subsection 22 Life and medical sciences professionals  Class 221 Life Sciences and Medical Sciences Professionals  Class 222 Medical sciences professionals (except nurses)  Subclass 2221 Medical professionals (except dentists)  Group 2221.2 Doctors  Subclass 2225 Professionals in the field of preventive medicine  2225.2 Doctors, specialists in the field of preventive medicine  2229.2 Medical professionals (except nursing and midwifery) |
| **Further**  **training** | Upon completion of the training program “General Medicine”, specialty 222 “Medicine”, a graduate can enrol in postgraduate education programs (internship, residency), where training is carried out according to educational programs for training a doctor. After completing the internship in the specialty “Medicine”, the specialist has the right to:  - complete specialization and perform the relevant professional work of a doctor of a certain specialty, which is specified in the current National Classifier of Ukraine: Classifier of Professions SC 003:2010, hold a relevant medical position;  - continue education at the third (academic and research) level of higher education to obtain the degree of Doctor of Philosophy. |
| **5 – Teaching and assessment** | |
| **Teaching and learning** | Competent, student-centred, problem-oriented approaches and proactive self-learning. The educational process is carried out in the following forms: interactive scientific and educational lectures, practical classes in small groups, simulation training, independent work, consultations with teachers, writing case histories, internships in educational and treatment centres of primary care, objective-structured clinical examination (OSCE ) in the 3, 4, 5th years of study, practical training rotations, simulation trainings. |
| **Assessment** | Evaluation of learning outcomes is carried out on the principles of objectivity, consistency and systematicity, planning, unity of requirements, openness, transparency, accessibility and comprehensibility of the assessment methodology, taking into account the individual capabilities of students.  Student’s academic achievements assessment is carried out according to the scale of the educational institution and according to the ECTS scale.  Types of control: current, intermediate, summative, self-control, evaluation of practical training results, OSCE evaluation, certification of graduates.  Forms of control: credits, differentiated credits, exams, OSCE, 1 and 2 stages of the unified state qualification exam (USQE). Certification. |
| **6 – Program competences** | |
| **Integral competence** | Ability to solve typical and complex specialized problems, including those of a research and innovation nature in the field of medicine. Ability to continue learning with a high degree of autonomy. |
| **General competences (GC)** | GC 1. Capacity for abstract thinking, analysis and synthesis.  GC 2. Ability to learn and acquire modern knowledge.  GC 3. Capacity for applying knowledge in practical situations.  GC 4. Knowledge and understanding of the subject area and understanding of professional activity.  GC 5. Capacity to adapt and act in a new situation.  GC 6. Ability to make reasoned decisions.  GC 7. Ability to work in a team.  GC 8. Ability of interpersonal interaction.  GC 9. Ability to communicate in the state language, both orally and in writing; ability to communicate in a foreign language.  GC 10. Ability to use information and communications technologies.  GC 11. Ability to search, process and analyse information from various sources.  GC 12. Perseverance and commitment to tasks and responsibilities.  GC 13. Awareness of equal opportunities and gender issues.  GC 14. Ability to implement rights and responsibilities as a member of society, to realize the values of a civil (free democratic) society and the need for its sustainable development, the supremacy of law, human and civil rights and freedoms in Ukraine. Ability to act socially responsible and civic-minded.  GC 15. Ability to preserve and enhance moral, cultural, scientific values and achievements of society on the basis of understanding of the history and patterns of the subject area development, its place in the general system of knowledge about nature and society and in the development of society, technique and technology, to use different types and forms of motor activity for active rest and healthy lifestyle. |
| **Professional competences (PC)** | PC 1. Ability to collect medical information about the patient and analyse clinical data.  PC 2. Ability to determine the required list of laboratory and instrumental studies and evaluate their results.  PC 3. Ability to establish a preliminary and clinical diagnosis of the disease.  PC 4. Ability to determine the required mode of work and rest in the treatment and prevention of diseases.  PC 5. Ability to determine nutrition plan in the treatment and prevention of diseases.  PC 6. Ability to determine the principles and nature of treatment and prevention of diseases.  PC 7. Ability to diagnose emergencies.  PC 8. Ability to determine tactics and provide emergency medical care.  PC 9. Ability to carry out medical and evacuation measures.  PC 10. Ability to perform medical manipulations.  PC 11. Ability to solve medical problems in new or unfamiliar environments in the presence of incomplete or limited information, with the account of aspects of social and ethical responsibility.  PC 12. Ability to determine the management of physiological pregnancy, physiological childbirth and the postpartum period. Family planning and contraceptive counselling skills.  PC 13. Ability to carry out sanitary, hygienic and preventive measures.  PC 14. Ability to plan and conduct preventive and anti-epidemic measures for infectious diseases.  PC 15. Ability to conduct a labour capacity examination.  PC 16. Ability to keep medical records, including electronic forms.  PC 17. Ability to assess the impact of the environment, socio-economic and biological factors on the health of an individual, family, population.  PC 18. Ability to analyse the activities of a doctor, department, health care institution, ensure the quality of medical care and improve the efficiency of medical resources.  PC 19. Ability to organize and integrate medical care of the population and conduct marketing and management of medical services.  PC 20. Ability to conduct epidemiological and statistical medical studies of public health, to process social, economic and medical information.  PC 21. Ability to clearly and reasonably communicate knowledge and information on health issues and related issues to professionals, the public and students.  PC 22. Ability to manage the work processes in health care, including those that are complex, unpredictable and require new strategic approaches.  PC 23. Ability to develop and implement scientific and applied projects in the field of health care.  PC 24. Adherence to ethical principles when working with patients, laboratory animals.  PC 25. Adherence to professional and academic integrity, being responsible for the accuracy of scientific results. |
| **7 – Program learning outcomes (PLO)** | |
|  | PLO 1. To possess a comprehensive knowledge of the professional activity structure. To be able to carry out professional activities that require updating and integration of knowledge. To be responsible for professional development, further professional training with a high level of autonomy.  PLO 2. To understand and know fundamental, biomedical and clinical sciences at the level sufficient to solve professional problems in the field of health care.  PLO 3. To possess specialized conceptual knowledge, which is the basis for research, implementation of innovative methods of diagnosis and treatment in the field of health care; to critically comprehend problems in the field of medicine and related interdisciplinary problems.  PLO 4. To single out and identify the leading clinical symptoms and syndromes (according to list 1); according to standard methods, using preliminary data of the patient’s anamnesis, data of the patient’s examination, knowledge about a human, their organs and organ systems, to establish a preliminary clinical diagnosis of the disease (according to list 2).  PLO 5. To collect complaints, life history and case history, to assess the psychomotor and physical development of the patient, the state of organs and organ systems of the body, based on the results of laboratory and instrumental studies to assess information about the diagnosis (list 4), with the account of the patient’s age.  PLO 6. To establish a final clinical diagnosis by making an informed decision and analysis of subjective and objective data of clinical, additional examination, differential diagnosis, adhering to relevant ethical and legal norms, under the supervision of a doctor-manager in a health care facility (according to list 2).  PLO 7. To prescribe and analyse additional (mandatory and optional) methods of examination (laboratory, functional and / or instrumental) (according to list 4) to patients with diseases of organs and organ systems of the body for differential diagnosis of diseases (list 2).  PLO 8. To determine the main clinical syndrome or the cause of severity of the injured person (according to list 3) by making an informed decision and assessing the human condition under any circumstances (in a health care facility, outside it), including conditions of emergency and hostilities, in the field, in conditions of lack of information and time limitation.  PLO 9. To determine the nature and principles of treatment (conservative, operative) of patients with diseases (according to list 2), and methods of rehabilitation of patients, with the account of patient’s age, in a health care facility, outside and at the stages of medical evacuation, including in the field, on the basis of a preliminary clinical diagnosis, adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard patterns, using unified clinical protocols and international guidelines for medical care; if necessary, to expand the standard schemes, to be able to justify personalized recommendations under the supervision of a doctor-manager in a health care facility.  PLO 10. To determine the necessary mode of work, rest and nutrition on the basis of the final clinical diagnosis, adhering to the relevant ethical and legal norms, by making an informed decision according to existing algorithms and standard schemes.  PLO 11. To determine the approach, plan and management of physiological pregnancy, physiological childbirth and the postpartum period by making an informed decision according to existing algorithms and standard schemes.  PLO 12. To assess the general condition of the new born child by making an informed decision according to existing algorithms and standard schemes, adhering to the relevant ethical and legal norms.  PLO 13. To assess and monitor the development of the child, provide recommendations for breastfeeding and nutrition depending on age, organize preventive vaccinations according to the calendar.  PLO 14. To define tactics and provide first medical care in emergencies (according to list 3) for a limited time in accordance with existing clinical guidelines and treatment standards.  PLO 15. To organize medical care and evacuation measures for the population and servicemen in emergencies and hostilities, including in the field.  PLO 16. To design rational medical routes of patients; organize interaction with colleagues in their own and other institutions, organizations and establishments; to control the quality of medical care; to identify factors that hinder the improvement of medical care quality and safety. To estimate the cost of medical services; to substantiate the choice of an adequate method of financing (payment) and the choice of rational forms of organization of medical services. To apply methods of economic analysis when choosing methods of diagnosis, prevention, treatment, rehabilitation.  PLO 17. To perform medical manipulations (according to list 5) in a health care facility, at home or at work on the basis of the patient’s condition by making an informed decision, adhering to the relevant ethical and legal norms.  PLO 18. To determine the state of functioning and limitations of a person’s life and duration of disability with the preparation of relevant documentation in a health care institution on the basis of data on the disease and its course, features of professional activity, etc. To keep medical records of the patient and the population on the basis of regulatory documents.  PLO 19. To plan and implement a system of preventive measures for the outbreak and spread of diseases of different aetiology among the population.  PLO 20. To analyse the epidemiological situation and implement mass and individual anti-epidemic measures, general and local prevention of infectious diseases.  PLO 21. To search for the necessary information in the professional literature and databases of other sources, to be able to analyse, evaluate and apply it in accordance with the principles of evidence-based medicine.  PLO 22. To apply modern digital technologies, specialized software, statistical methods of data analysis to solve health problems.  PLO 23. To assess the impact of the environment on human health to evaluate the incidence of the population.  PLO 24. To organize the necessary level of individual security (one’s own and that of people which are taken care of) in case of typical dangerous situations in the individual field of activity. To adhere to a healthy lifestyle, use the techniques of self-regulation and self-control.  PLO 25. To clearly and unambiguously communicate one’s knowledge, conclusions and arguments on health problems and related issues to specialists and non-specialists. To effectively form a communication strategy in professional activities. To be guided in the activity by civil rights, freedoms and duties; to raise general and cultural level.  PLO 26. To manage work processes in the health care that are complex, unpredictable and require new strategic approaches, to organize the work and professional development of staff based on acquired skills of effective teamwork, leadership positions, high quality, accessibility and fairness, ensuring integrated medical care.  PLO 27. To fluently communicate in the state and English languages, both orally and in writing, to discuss professional activities, conduct research, and participate in projects.  PLO 28. To make effective health decisions, to assess resources, to take into account social, economic and ethical implications. To adhere to the requirements of ethics, bioethics and deontology in the professional activities.  PLO 29. To plan, organize and conduct activities for the specific prevention of infectious diseases, in particular those in accordance with the National calendar of preventive vaccinations, both mandatory and recommended. To manage vaccine residues, to organize additional vaccination campaigns, including immunoprophylactic measures. |
| **8 – Resource support for training program implementation** | |
| **Human resources** | All academic and research workers who are involved in the implementation of the educational component of the training program and have a confirmed level of scientific and professional activity are, as a rule, full-time employees of I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine; employees of clinical departments are practicing specialists, have a scientific degree and an academic title, qualification in accordance with the specialty, confirmed by scientific, scientific-pedagogical, professional activity in the relevant specialty in at least four points listed in the Licensing conditions for conducting educational activities, approved by Resolution of the Cabinet of Ministers of Ukraine dated 30.12.2015 No. 1187 (as amended by the resolution of the Cabinet of Ministers of Ukraine dated 24.03.2021 No. 365).  The instruction in the training program “General Medicine” is provided by 509 academic and research workers of the Faculty of Medicine, including 1 Academician of the National Academy of Medical Sciences of Ukraine, 1 Corresponding Member of the National Academy of Medical Sciences of Ukraine, 3 Honoured Doctors of Ukraine, 2 Honoured Inventors of Ukraine, 2 Honoured Workers of Education of Ukraine, 1 Honoured Health Care Worker of Ukraine, 4 Excellences in Education of Ukraine, 2 Laureates of the State Prize of Ukraine, 8 Honoured Masters of Sciences and Technologies of Ukraine, 2 persons awarded the Third Class of Order of Merit of Ukraine; 89 Doctors of Science, Professors; 8 Doctors of Science, Associate Professors; 281 PhDs, Associate Professors; 96 PhDs, Senior Lecturers, Assistant Professors; 35 Assistant Professors without a scientific degree and research and academic workers of other faculties of I. Horbachevsky Ternopil National Medical University of the Ministry of Health of Ukraine. |
| **Material and technical support** | There are classrooms and lecture halls equipped with computer workstations, multimedia tools, and technical teaching aids; a clinical facility for students’ internships or actual agreements for conducting internships in medical institutions; availability of standardized patients, specific manikins and medical dummies which corresponds to the Licensing conditions for conducting educational activities, approved by Resolution of the Cabinet of Ministers of Ukraine dated 30.12.2015 No. 1187 (as amended by the resolution of the Cabinet of Ministers of Ukraine dated 24.03.2021 No. 365).  The educational facilities of the structural subdivisions of the Faculty of Medicine allow organizing and conducting classes in all academic disciplines at the appropriate scientific and methodological level. There are educational and lecture halls that provide computer workstations, multimedia equipment, technical teaching aids in accordance with the actual contingent of students and the declared volume with the account of training in shifts;  There is a social and household infrastructure, namely a library, including reading halls, food outlets, an assembly hall, a sports hall, sports grounds, and a medical centre. At least 50% of students are provided with a dormitory. Students are provided with computer workstations, laboratories, equipment, and facilities necessary for the implementation of the curricula. There are clinical facilities for conducting practical training on the basis of current agreements on conducting practical training in medical and preventive institutions. To master all practical skills and implement work with simulated patients, the university operates a simulation training centre equipped with standardized patients, manikins, medical dummies and other necessary equipment. |
| **Information and methodical support** | Proper educational and methodological support (complexes) of educational disciplines, which contain methodological materials for seminars, practical classes, laboratory workshops, methodological instructions for students’ independent work, individual tasks of a practical orientation; methodical materials for writing case histories, practical training, tasks for knowledge control (examination cards, test tasks, control papers); modern information sources and computer equipment; a library with modern educational literature, scientific, reference and professional periodicals which corresponds to the Licensing conditions for conducting educational activities, approved by Resolution of the Cabinet of Ministers of Ukraine dated 30.12.2015 No. 1187 (as amended by the resolution of the Cabinet of Ministers of Ukraine dated 24.03.2021 No. 365).  The official website http://www.tdmu.edu.ua contains information about the training programs, academic, research and educational activities, structural subdivisions, admission rules, contacts.  There is an electronic resource of the university, which contains educational and methodological materials of the educational disciplines of the curriculum in the MOODLE system. There is a complex of educational and methodological support for each component of the training program and curriculum; departments have developed syllabi, working programs of educational disciplines and complexes of educational and methodological support (lecture presentations, video lectures, materials for preparing lectures, materials for preparing practical classes, test questions and situational tasks; educational videos). There are methodical materials for students’ certification.  Technical support for distance learning is ensured by the Microsoft Teams platform. Class schedule and electronic journal are available in the ACS system.  The fund of the TNMU scientific library contains more than 316,000 copies of literature, including educational literature from all disciplines studied (in the national and English languages), Ukrainian and foreign professional periodicals of a corresponding or related profile, including in electronic form. There is a reading hall and rooms for independent work, which provide free access to the Internet, work in the Wi-Fi zone. Information about all library resources is available on the website of the university library https://library.tdmu.edu.ua/resursy-biblioteky. There is an access to databases of periodical scientific publications in English of the relevant or related profile. |
| **9 – Academic mobility** | |
| **National credit**  **mobility** | Recognition of learning outcomes obtained in other educational institutions within the framework of academic mobility in accordance with TNMU agreements |
| **International credit**  **mobility** | Conducting international mobility within Erasmus+ programs and cooperation agreements with universities |
| **Training of foreign**  **students** | Education of foreign students is carried out in accordance with the law requirements |

**2. List of components of the training program (TP) and their logical sequence**

**2.1. List of the TP components**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Code** | **Components of the training program**  **(academic disciplines, course projects (papers), practical training, qualification paper)** | | **Number of**  **credits** | **Form of summative assessment** |
| **1** | **2** | | **3** | **4** |
| **Compulsory Components of TP** | | | | |
| **Cycle of General Training Disciplines** | | | | |
| *Humanities and Social Sciences* | | | | |
| CC 1 | English Language (for Specific Purposes) | | 4,0 | Diff. credit |
| CC 2 | Ukrainian Language (for Specific Purposes) | | 3,0 | Diff. credit |
| CC 3 | History of Ukraine and Ukrainian Culture | | 2,0 | Credit |
| CC 4 | Philosophy and Basics of Academic Integrity | | 2,0 | Diff. credit |
| *Fundamental Medical and Biological Sciences* | | | | |
| CC 5 | Medical Chemistry | | 3,0 | Exam |
| CC 6 | Latin Language and Medical Terminology | | 3,0 | Diff. credit |
| CC 7 | Medical Biology | | 4,0 | Exam |
| CC 8 | Medical Physics, Medical Informatics and Biostatistics | | 5,0 | Credit |
| CC 9 | Biological and Bioorganic Chemistry | | 8,5 | Exam |
| CC 10 | Human Anatomy | | 13,0 | Exam |
| CC 11 | Histology, Cytology and Embryology | | 10,0 | Exam |
| CC 12 | Physiology and Bioethics | | 9,0 | Exam |
| CC 13 | Microbiology, Virology and Immunology | | 7,5 | Exam |
| CC 14 | Molecular Biology and Medical Genetics | | 2,0 | Credit |
| **Cycle of Professional Training Disciplines** | | | | |
| CC 15 | Clinical Anatomy and Operative Surgery | | 3,0 | Diff. credit |
| CC 16 | Ukrainian as a Foreign Language / Training of Non-Commissioned Officers in the Branch of Knowledge “Healthcare”. Specialty “Medicine” | | 10,0 | Diff. credit |
| CC 17 | Hygiene and Ecology | | 4,5 | Diff. credit |
| CC 19 | Pathomorphology | | 6,0 | Exam |
| CC 20 | Pathophysiology | | 6,0 | Exam |
| CC 21 | Pharmacology | | 6,0 | Exam |
| CC 22 | Social Medicine, Public Health | | 4,0 | Diff. credit |
| CC 23 | Propaedeutics of Internal Medicine | | 4,0 | Diff. credit |
| CC 24 | Propaedeutics of Paediatrics | | 4,0 | Diff. credit |
| CC 25 | General Surgery | | 4,0 | Diff. credit |
| CC 26 | Radiology | | 3,5 | Diff. credit |
| CC 27 | Medical Psychology | | 2,0 | Credit |
| CC 29 | Internal Medicine Including Endocrinology | | 5,5 | Exam |
| CC 30 | Paediatrics | | 4,0 | Exam |
| CC 31 | Surgery | | 4,0 | Exam |
| CC 32 | Obstetrics and Gynaecology | | 6,5 | Exam |
| CC 33 | Urology | | 2,0 | Diff. credit |
| CC 34 | Otolaryngology | | 2,0 | Diff. credit |
| CC 35 | Ophthalmology | | 2,0 | Diff. credit |
| CC 36 | Neurology | | 4,0 | Exam |
| CC 37 | Psychiatry, Narcology | | 3,0 | Diff. credit |
| CC 38 | Dermatology, Venereology | | 2,0 | Diff. credit |
| CC 39 | Physical Rehabilitation, Sports Medicine | | 1,5 | Diff. credit |
| CC 40 | Forensic Medicine. Medical Law of Ukraine | | 3,0 | Credit |
| CC 42 | Internal Medicine, Including Clinical Pharmacology, Clinical Immunology, and Allergology, Occupational Diseases | | 9,0 | Exam |
| CC 43 | Infectious Diseases and Epidemiology | | 5,0 | Exam |
| CC 44 | Oncology and Radiation Medicine | | 3,5 | Diff. credit |
| CC 45 | Paediatrics, Children’s Infectious Diseases and Medical Genetics | | 5,0 | Exam |
| CC 46 | Surgery, Including Paediatric Surgery, Neurosurgery | | 6,5 | Exam |
| CC 47 | Traumatology and Orthopaedics | | 3,0 | Diff. credit |
| CC 48 | Phthisiology | | 1,5 | Credit |
| CC 49 | Anaesthesiology and Intensive Care | | 3,0 | Diff. credit |
| CC 50 | Emergency and Urgent Medical Care | | 2,0 | Diff. credit |
| CC 52 | Preventive Medicine, Hygiene and Ecology | | 2,0 | Diff. credit |
| CC 53 | Healthcare Management and Economics | | 2,0 | Diff. credit |
| CC 54 | Internal Medicine | | 4,0 | Diff. credit |
| CC 55 | Emergencies in Internal Medicine | | 2,5 | Diff. credit |
| CC 56 | Infectious Diseases | | 1,5 | Credit |
| CC 57 | Surgery, Paediatric Surgery | | 4,0 | Diff. credit |
| CC 58 | Paediatrics and Infectious Diseases in Children | | 6,0 | Diff. credit |
| CC 59 | Obstetrics and Gynaecology | | 3,0 | Diff. credit |
| CC 60 | General Practice – Family Medicine | | 4,0 | Diff. credit |
| **The total amount of CREDITS OF compulsory components** | | | **240,0** | |
| **Elective Components of the TP** | | | | |
| Elective Block 1  (A student chooses 6 elective courses) | | | | |
| EC 1.1 | Academic Writing | | 3,0 | Credit |
| EC 1.2 | Biology of Individual Development | | 3,0 | Credit |
| EC 1.3 | Civic Culture and Tolerance | | 3,0 | Credit |
| EC 1.4 | Democracy: from Theory to Practice | | 3,0 | Credit |
| EC 1.5 | Second Foreign Language (German) | | 3,0 | Credit |
| EC 1.6 | History of Medicine | | 3,0 | Credit |
| EC 1.7 | Humanity and Empathy in the Work of a Doctor | | 3,0 | Credit |
| EC 1.8 | Fundamentals of Ukrainian Medical Terminology | | 3,0 | Credit |
| EC 1.9 | Political Science | | 3,0 | Credit |
| EC 1.10 | Science of Law | | 3,0 | Credit |
| EC 1.11 | Applied Chemistry in Medicine | | 3,0 | Credit |
| EC 1.12 | Sociological Aspects of Civil Society | | 3,0 | Credit |
| EC 1.13 | Philosophy of Health | | 3,0 | Credit |
| EC 1.14 | Artificial Intelligence in Medicine | | 3,0 | Credit |
|  | Physical Training | |  | Credit |
| Elective Block 2  (A student chooses 5 elective courses) | | | | |
| EC 2.1 | Academic Integrity | | 3,0 | Credit |
| EC 2.2 | Topical Issues of Medical Embryology | | 3,0 | Credit |
| EC 2.3 | English Medical Terminology | | 3,0 | Credit |
| EC 2.4 | Bioethics of Preclinical and Clinical Scientific Research | | 3,0 | Credit |
| EC 2.5 | Logic and Critical Thinking | | 3,0 | Credit |
| EC 2.6 | Medical Ethics | | 3,0 | Credit |
| EC 2.7 | German Medical Terminology | | 3,0 | Credit |
| EC 2.8 | Fundamentals of Medical Communications | | 3,0 | Credit |
| EC 2.9 | Basics of Economic Theory | | 3,0 | Credit |
| EC 2.10 | Basics of Sociological Research | | 3,0 | Credit |
| EC 2.11 | Legal Status of the Subjects of Health Care Legal Relations | | 3,0 | Credit |
| EC 2.12 | Nanomedicine: Modern Health Technologies | | 3,0 | Credit |
| EC 2.13 | Fundamentals of Nutritional Biochemistry | | 3,0 | Credit |
| EC 2.14 | Fundamentals of Food, Toxicological Chemistry, and Pharmaceutical Chemistry | | 3,0 | Credit |
| EC 2.15 | Modern Aspects of Skin Biochemistry in Cosmetology | | 3,0 | Credit |
|  | Physical Training | |  | Credit |
| Elective Block 3  (A student chooses 4 elective courses) | | | | |
| EC 3.1 | ADME/Tox: Chemical and Pharmacological Aspects | | 3,0 | Credit |
| EC 3.2 | Current Issues of Microbial Biotherapy and Functional Nutrition | | 3,0 | Credit |
| EC 3.3 | English Clinical Medical Terminology | | 3,0 | Credit |
| EC 3.4 | Nosocomial Infections | | 3,0 | Credit |
| EC 3.5 | Pathogens of Current Airborne Infections | | 3,0 | Credit |
| EC 3.6 | Clinical Biochemistry | | 3,0 | Credit |
| EC 3.7 | Cell Technology in Medicine | | 3,0 | Credit |
| EC 3.8 | Culture of Medical Professional Language and Communication | | 3,0 | Credit |
| EC 3.9 | Medicinal Plants and Phytotherapy Principles | | 3,0 | Credit |
| EC 3.10 | Therapeutic and Rehabilitation Massage | | 3,0 | Credit |
| EC 3.11 | Medical Aspects of Bioterrorism | | 3,0 | Credit |
| EC 3.12 | Human Microbial Ecology | | 3,0 | Credit |
| EC 3.13 | Fundamentals of Electrocardiography | | 3,0 | Credit |
| EC 3.14 | Fundamentals of Clinical and Laboratory Diagnostics | | 3,0 | Credit |
| EC 3.15 | Fundamentals of Children Nutrition | | 3,0 | Credit |
| EC 3.16 | Palliative Psychology | | 3,0 | Credit |
| EC 3.17 | Professional Medical Communication of a Doctor with a Patient in Ukrainian | | 3,0 | Credit |
| EC 3.18 | Psychophysiology | | 3,0 | Credit |
| EC 3.19 | Functional Diagnostics of the Musculoskeletal System and Fundamentals of Muscle Testing and Electromyography | | 3,0 | Credit |
| EC 3.20 | Neurobiochemistry | | 3,0 | Credit |
| EC 3.21 | Pathological Biochemistry | | 3,0 | Credit |
| Elective Block 4  (A student chooses 4 elective courses) | | | | |
| EC 4.1 | Current Issues of Endoscopy | | 3,0 | Credit |
| EC 4.2 | Topical Issues of Minimally Invasive Surgery | | 3,0 | Credit |
| EC 4.3 | Current Issues of Topical Diagnosis of Nervous System Pathology | | 3,0 | Credit |
| EC 4.4 | Biopsy Diagnostics | | 3,0 | Credit |
| EC 4.5 | Experimental Reconstructive Operative Surgery | | 3,0 | Credit |
| EC 4.6 | Communicative Skills in Medical Practice | | 3,0 | Credit |
| EC 4.7 | Microbiological Principles of Rational Antibiotic Therapy | | 3,0 | Credit |
| EC 4.8 | Neuroanatomy | | 3,0 | Credit |
| EC 4.9 | Basics of Somnology | | 3,0 | Credit |
| EC 4.10 | Peculiarities of the Course of Internal Diseases in the Elderly | | 3,0 | Credit |
| EC 4.11 | Pathophysiological Basics of Diagnosis and Treatment of Endocrine Diseases | | 3,0 | Credit |
| EC 4.12 | Primary Palliative Care | | 3,0 | Credit |
| EC 4.13 | Family Planning. Contraception | | 3,0 | Credit |
| EC 4.14 | Practical Dietetics. Typological Features of Human Eating Behaviour | | 3,0 | Credit |
| EC 4.15 | Preventive Medicine in Internal Diseases | | 3,0 | Credit |
| EC 4.16 | Human Reproduction | | 3,0 | Credit |
| EC 4.17 | Tropical Medicine | | 3,0 | Credit |
| EC 4.18 | Art Therapy in the Field of Mental Health | | 3,0 | Credit |
| EC 4.19 | Professional Medical Communications | | 3,0 | Credit |
| EC 4.20 | Functional Diagnostics in Pulmonology | | 3,0 | Credit |
| Elective Block 5  (A student chooses 3 elective courses) | | | | |
| EC 5.1 | Current Human Parasitic Diseases | | 3,0 | Credit |
| EC 5.2 | Current Issues of Medical Genetics in Clinical Practice | | 3,0 | Credit |
| EC 5.3 | Topical Issues of Palliative Care for Cancer Patients | | 3,0 | Credit |
| EC 5.4 | Topical Issues of Plastic Surgery and Regenerative Medicine | | 3,0 | Credit |
| EC 5.5 | Topical Issues of Early Diagnosis of the Ear, Throat, Nose Cancer | | 3,0 | Credit |
| EC 5.6 | Current Issues of Cardiology | | 3,0 | Credit |
| EC 5.7 | Internal Medicine. Management of Patients with Rare Pathology in the Clinical Picture of Internal Diseases | | 3,0 | Credit |
| EC 5.8 | Defects in Medical Care: Types, Causes, Consequences | | 3,0 | Credit |
| EC 5.9 | Experimental Plastic Surgery | | 3,0 | Credit |
| EC 5.10 | Infectious Diarrhoea Pathogens | | 3,0 | Credit |
| EC 5.11 | Fundamentals of Ultrasound Examination | | 3,0 | Credit |
| EC 5.12 | Paediatric Otolaryngology | | 3,0 | Credit |
| EC 5.13 | Palliative Care and Geriatrics | | 3,0 | Credit |
| EC 5.14 | Pathophysiological Basics of Diagnosis and Treatment of Cardiovascular Diseases | | 3,0 | Credit |
| EC 5.15 | Pathophysiology of Emergencies | | 3,0 | Credit |
| EC 5.16 | Perinatal Care | | 3,0 | Credit |
| EC 5.17 | Adolescent Medicine | | 3,0 | Credit |
| EC 5.18 | Side Effects of Drugs | | 3,0 | Credit |
| EC 5.19 | Section Course | | 3,0 | Credit |
| EC 5.20 | Modern Biomarkers in Internal Diseases | | 3,0 | Credit |
| EC 5.21 | Electronic Health System in Medical Practice | | 3,0 | Credit |
| EC 5.22 | Fundamentals of Medical Cosmetology in Medical Practice | | 3,0 | Credit |
| EC 5.23 | Evaluation of Medical Technologies | | 3,0 | Credit |
| EC 5.24 | Specialized Medical Communications | | 3,0 | Credit |
| EC 5.25 | Toxicology of Poisons and Poisoning. Chemical-Toxicological Analysis | | 3,0 | Credit |
| Elective Block 6  (A student chooses specialization and 4 elective courses) | | | | |
| **Elective Specialization 6.1: Obstetrics and Gynaecology** | ES 6.1.1 | Gynaecological Endocrinology. Gynaecology of Children and Adolescents | 2,5 | Credit |
| ES 6.1.2 | Application of E-Health in the Practice of Obstetrician-Gynaecologist | 0,5 | Credit |
| ES 6.1.3 | Oncogynaecology | 2,0 | Credit |
| ES 6.1.4 | Perinatology and Reproductive Gynaecology | 1,5 | Credit |
| ES 6.1.5 | Modern Aspects of Family Planning | 2,5 | Credit |
| ES 6.1.6 | Functional and Laboratory Diagnostics in Obstetrics and Gynaecology | 3,0 | Credit |
| **Elective Specialization 6.2: Internal Medicine** | ES 6.2.1 | Application of E-Health in the Practice of a Therapist | 0,5 | Credit |
| ES 6.2.2 | Innovative Preventive Technologies in Internal Diseases | 2,5 | Credit |
| ES 6.2.3 | Management of Patients after Invasive Interventions and Organ Transplantation | 3,0 | Credit |
| ES 6.2.4 | Management of the Comorbid Patient in the Internal Medicine Clinic | 3,0 | Credit |
| ES 6.2.5 | Functional and Laboratory Diagnostics in Internal Medicine | 3,0 | Credit |
| **Elective Specialization 6.3: General Practice (Family Medicine)** | ES 6.3.1 | Current Issues of General Medical Practice | 3,0 | Credit |
| ES 6.3.2 | Algorithm of Practical Use of the International Classification of Primary Care (ICPC2) | 2,5 | Credit |
| ES 6.3.3 | Application of E-Health in the Practice of a Family Doctor | 0,5 | Credit |
| ES 6.3.4 | Organizational Principles of Work of a General Practitioner–Family Doctor | 3,0 | Credit |
| ES 6.3.5 | Functional and Laboratory Diagnostics in General Practice – Family Medicine | 3,0 | Credit |
| **Elective Specialization 6.4: Surgery** | ES 6.4.1 | Application of E-Health in the Practice of a Surgeon | 0,5 | Credit |
| ES 6.4.2 | Clinical Oncology | 1,5 | Credit |
| ES 6.4.3 | Innovative Technologies in Surgery | 1,5 | Credit |
| ES 6.4.4 | Cardiovascular and Interventional Surgery | 3,0 | Credit |
| ES 6.4.5 | Transplantology | 2,5 | Credit |
| ES 6.4.6 | Functional and Laboratory Diagnostics in Surgery | 3,0 | Credit |
| EC 6.1 | Current Issues of Andrology | | 3,0 | Credit |
| EC 6.2 | Current Issues of Neonatology | | 3,0 | Credit |
| EC.6.3 | Current Issues of Otosurgery | | 3,0 | Credit |
| EC 6.4 | Current Issues of Peripheral Nervous System Pathology | | 3,0 | Credit |
| EC 6.5 | Current Issues of Transfusiology | | 3,0 | Credit |
| EC 6.6 | Current Issues of Cerebrovascular Pathology | | 3,0 | Credit |
| EC 6.7 | Vaccine Prophylaxis of Infectious Diseases | | 3,0 | Credit |
| EC 6.8 | Gerontology in General Hospital Practice | | 3,0 | Credit |
| EC 6.9 | ECG in Emergency Cardiology | | 3,0 | Credit |
| EC 6.10 | Invasive Methods of Diagnosis and Treatment of Cardiac Diseases | | 3,0 | Credit |
| EC 6.11 | Clinical Electroencephalography | | 3,0 | Credit |
| EC 6.12 | Clinical Pathophysiology | | 3,0 | Credit |
| EC 6.13 | Conflictology | | 3,0 | Credit |
| EC 6.14 | Minimally Invasive Urology | | 3,0 | Credit |
| EC 6.15 | Marketing of Medical Services | | 3,0 | Credit |
| EC 6.16 | Methods in Auditory Research | | 3,0 | Credit |
| EC 6.17 | Fundamentals of Electrophysiological Diagnostics | | 3,0 | Credit |
| EC 6.18 | Theoretical and Practical Basics of Reflexology | | 3,0 | Credit |
| EC 6.19 | Palliative Care and Pain Management | | 3,0 | Credit |
| EC 6.20 | Palliative and Hospice Care | | 3,0 | Credit |
| EC 6.21 | Physical and Rehabilitation Medicine | | 3,0 | Credit |
| EC 6.22 | Functional Diagnostics of Sensory Systems | | 3,0 | Credit |
| EC 6.23 | Outpatient Surgery | | 3,0 | Credit |
| EC 6.24 | Live Surgery in Gynaecology | | 3,0 | Credit |
| EC 6.25 | Minimally Invasive, Endoscopic, and Outpatient Methods in Proctology | | 3,0 | Credit |
| EC 6.26 | Fundamentals of Plastic Surgery | | 3,0 | Credit |
| EC 6.27 | Modern Minimally Invasive and Outpatient Methods in Phlebology | | 3,0 | Credit |
| EC 6.28 | Telemedicine | | 3,0 | Credit |
| EC 6.29 | Surgical Infection | | 3,0 | Credit |
| **Practical training** | | | | |
| CC 18 | Patient Care (Practical Training) | | 6,0 | Diff. credit |
| CC 28 | Practical Training in Nursing | | 5,0 | Diff. credit |
| CC 41 | Practical Training in General Medicine І | | 6,0 | Diff. credit |
| CC 51 | Practical Training in General Medicine ІІ | | 6,0 | Diff. credit |
| CC 61 | Practical Training in Medical Simulation | | 4,0 | Diff. credit |
| CC 62 | Specialized Practical Training | | 3,0 | Diff. credit |
| **THE TOTAL AMOUNT OF CREDITS OF THE PRACTICAL TRAINING** | | | **30,0** | |
| **THE TOTAL AMOUNT OF CREDITS OF THE TRAINING PROGRAM** | | | **360,0** | |

**2.2. Structural and logical scheme**

| **Year of study** | **Type of educational activity** |
| --- | --- |
| 1st year  (60 ECTS credits) | Compulsory course (42 ECTS credits)  Elective course (18 ECTS credits) |
| 2nd year  (60 ECTS credits) | Compulsory course (45 ECTS credits)  Elective course (15 ECTS credits) |
| 3rd year  (60 ECTS credits) | Compulsory course (48 ECTS credits)  Elective course (12 ECTS credits) |
| 4th year  (60 ECTS credits) | Compulsory course (48 ECTS credits)  Elective course (12 ECTS credits) |
| 5th year  (60 ECTS credits) | Compulsory course (51 ECTS credits)  Elective course (9 ECTS credits) |
| 6th year  (60 ECTS credits) | Compulsory course (36 ECTS credits)  Elective course (24 ECTS credits) |

**2.3. The ratio of educational components in the structure of the TP**

Educational and professional training at the second (Master’s) level of higher education in specialty 222 “Medicine” provides for a differentiated distribution of disciplines of general training, professional and elective components of the TP by years of study depending on the number of ECTS credits.

Distribution of educational components within the training program at the second (Master’s) level of higher education in specialty 222 “Medicine”.

**The sequence of studying the components of the TP “General Medicine”**

**Distribution of components by year**

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **Code** | **Components of the training program**  **(academic disciplines, course projects (papers), practical training, qualification paper)** | | **Distribution by year of study** | | | | | |
| **1** | **2** | **3** | **4** | **5** | **6** |
| **Compulsory Components of the TP** | | | | | | | | |
| **Cycle of General Training Disciplines** | | | | | | | | |
| *Humanities and Social Sciences* | | | | | | | | |
| CC 1 | English Language (for Specific Purposes) | | **\*** | **\*** |  |  |  |  |
| CC 2 | Ukrainian Language (for Specific Purposes) | | **\*** |  |  |  |  |  |
| CC 3 | History of Ukraine and Ukrainian Culture | | **\*** |  |  |  |  |  |
| CC 4 | Philosophy and Basics of Academic Integrity | | **\*** |  |  |  |  |  |
| *Fundamental Medical and Biological Sciences* | | | | | | | | |
| CC 5 | Medical Chemistry | | **\*** |  |  |  |  |  |
| CC 6 | Latin Language and Medical Terminology | | **\*** |  |  |  |  |  |
| CC 7 | Medical Biology | | **\*** |  |  |  |  |  |
| CC 8 | Medical Physics, Medical Informatics and Biostatistics | | **\*** |  |  |  |  |  |
| CC 9 | Biological and Bioorganic Chemistry | | **\*** | **\*** |  |  |  |  |
| CC 10 | Human Anatomy | | **\*** | **\*** |  |  |  |  |
| CC 11 | Histology, Cytology and Embryology | | **\*** | **\*** |  |  |  |  |
| CC 12 | Physiology and Bioethics | |  | **\*** |  |  |  |  |
| CC 13 | Microbiology, Virology and Immunology | |  | **\*** | **\*** |  |  |  |
| CC 14 | Molecular Biology and Medical Genetics | |  | **\*** |  |  |  |  |
| **Cycle of Professional Training Disciplines** | | | | | | | | |
| CC 15 | Clinical Anatomy and Operative Surgery | |  | **\*** | **\*** |  |  |  |
| CC 16 | Ukrainian as a Foreign Language / Training of Non-Commissioned Officers in the Branch of Knowledge “Healthcare”. Specialty “Medicine” | |  | **\*** |  | **\*** | **\*** |  |
| CC 17 | Hygiene and Ecology | |  | **\*** | **\*** |  |  |  |
| CC 19 | Pathomorphology | |  |  | **\*** |  |  |  |
| CC 20 | Pathophysiology | |  |  | **\*** |  |  |  |
| CC 21 | Pharmacology | |  |  | **\*** |  |  |  |
| CC 22 | Social Medicine, Public Health | |  |  | **\*** | **\*** |  |  |
| CC 23 | Propaedeutics of Internal Medicine | |  |  | **\*** |  |  |  |
| CC 24 | Propaedeutics of Paediatrics | |  |  | **\*** |  |  |  |
| CC 25 | General Surgery | |  |  | **\*** |  |  |  |
| CC 26 | Radiology | |  |  | **\*** |  |  |  |
| CC 27 | Medical Psychology | |  |  | **\*** |  |  |  |
| CC 29 | Internal Medicine Including Endocrinology | |  |  |  | **\*** |  |  |
| CC 30 | Paediatrics | |  |  |  | **\*** |  |  |
| CC 31 | Surgery | |  |  |  | **\*** |  |  |
| CC 32 | Obstetrics and Gynaecology | |  |  |  | **\*** | **\*** |  |
| CC 33 | Urology | |  |  |  | **\*** |  |  |
| CC 34 | Otolaryngology | |  |  |  | **\*** |  |  |
| CC 35 | Ophthalmology | |  |  |  | **\*** |  |  |
| CC 36 | Neurology | |  |  |  | **\*** |  |  |
| CC 37 | Psychiatry, Narcology | |  |  |  | **\*** |  |  |
| CC 38 | Dermatology, Venereology | |  |  |  | **\*** |  |  |
| CC 39 | Physical Rehabilitation, Sports Medicine | |  |  |  | **\*** |  |  |
| CC 40 | Forensic Medicine. Medical Law of Ukraine | |  |  |  | **\*** |  |  |
| CC 42 | Internal Medicine, Including Clinical Pharmacology, Clinical Immunology, and Allergology, Occupational Diseases | |  |  |  |  | **\*** |  |
| CC 43 | Infectious Diseases and Epidemiology | |  |  |  |  | **\*** |  |
| CC 44 | Oncology and Radiation Medicine | |  |  |  |  | **\*** |  |
| CC 45 | Paediatrics, Children’s Infectious Diseases and Medical Genetics | |  |  |  |  | **\*** |  |
| CC 46 | Surgery, Including Paediatric Surgery, Neurosurgery | |  |  |  |  | **\*** |  |
| CC 47 | Traumatology and Orthopaedics | |  |  |  |  | **\*** |  |
| CC 48 | Phthisiology | |  |  |  |  | **\*** |  |
| CC 49 | Anaesthesiology and Intensive Care | |  |  |  |  | **\*** |  |
| CC 50 | Emergency and Urgent Medical Care | |  |  |  |  | **\*** |  |
| CC 52 | Preventive Medicine, Hygiene and Ecology | |  |  |  |  |  | **\*** |
| CC 53 | Healthcare Management and Economics | |  |  |  |  |  | **\*** |
| CC 54 | Internal Medicine | |  |  |  |  |  | **\*** |
| CC 55 | Emergencies in Internal Medicine | |  |  |  |  |  | **\*** |
| CC 56 | Infectious Diseases | |  |  |  |  |  | **\*** |
| CC 57 | Surgery, Paediatric Surgery | |  |  |  |  |  | **\*** |
| CC 58 | Paediatrics and Infectious Diseases in Children | |  |  |  |  |  | **\*** |
| CC 59 | Obstetrics and Gynaecology | |  |  |  |  |  | **\*** |
| CC 60 | General Practice – Family Medicine | |  |  |  |  |  | **\*** |
| **Elective Components of the TP** | | | | | | | | |
| Elective Block 1  (A student chooses 6 elective courses) | | | | | | | | |
| EC 1.1 | Academic Writing | | **\*** |  |  |  |  |  |
| EC 1.2 | Biology of Individual Development | | **\*** |  |  |  |  |  |
| EC 1.3 | Civic Culture and Tolerance | | **\*** |  |  |  |  |  |
| EC 1.4 | Democracy: from Theory to Practice | | **\*** |  |  |  |  |  |
| EC 1.5 | Second Foreign Language (German) | | **\*** |  |  |  |  |  |
| EC 1.6 | History of Medicine | | **\*** |  |  |  |  |  |
| EC 1.7 | Humanity and Empathy in the Work of a Doctor | | **\*** |  |  |  |  |  |
| EC 1.8 | Fundamentals of Ukrainian Medical Terminology | | **\*** |  |  |  |  |  |
| EC 1.9 | Political Science | | **\*** |  |  |  |  |  |
| EC 1.10 | Science of Law | | **\*** |  |  |  |  |  |
| EC 1.11 | Applied Chemistry in Medicine | | **\*** |  |  |  |  |  |
| EC 1.12 | Sociological Aspects of Civil Society | | **\*** |  |  |  |  |  |
| EC 1.13 | Philosophy of Health | | **\*** |  |  |  |  |  |
| EC 1.14 | Artificial Intelligence in Medicine | | **\*** |  |  |  |  |  |
|  | Physical Training | | **\*** |  |  |  |  |  |
| Elective Block 2  (A student chooses 5 elective courses) | | | | | | | | |
| EC 2.1 | Academic Integrity | |  | **\*** |  |  |  |  |
| EC 2.2 | Topical Issues of Medical Embryology | |  | **\*** |  |  |  |  |
| EC 2.3 | English Medical Terminology | |  | **\*** |  |  |  |  |
| EC 2.4 | Bioethics of Preclinical and Clinical Scientific Research | |  | **\*** |  |  |  |  |
| EC 2.5 | Logic and Critical Thinking | |  | **\*** |  |  |  |  |
| EC 2.6 | Medical Ethics | |  | **\*** |  |  |  |  |
| EC 2.7 | German Medical Terminology | |  | **\*** |  |  |  |  |
| EC 2.8 | Fundamentals of Medical Communications | |  | **\*** |  |  |  |  |
| EC 2.9 | Basics of Economic Theory | |  | **\*** |  |  |  |  |
| EC 2.10 | Basics of Sociological Research | |  | **\*** |  |  |  |  |
| EC 2.11 | Legal Status of the Subjects of Health Care Legal Relations | |  | **\*** |  |  |  |  |
| EC 2.12 | Nanomedicine: Modern Health Technologies | |  | **\*** |  |  |  |  |
| EC 2.13 | Fundamentals of Nutritional Biochemistry | |  | **\*** |  |  |  |  |
| EC 2.14 | Fundamentals of Food, Toxicological Chemistry, and Pharmaceutical Chemistry | |  | **\*** |  |  |  |  |
| EC 2.15 | Modern Aspects of Skin Biochemistry in Cosmetology | |  | **\*** |  |  |  |  |
|  | Physical Training | |  | **\*** |  |  |  |  |
| Elective Block 3  (A student chooses 4 elective courses) | | | | | | | | |
| EC 3.1 | ADME/Tox: Chemical and Pharmacological Aspects | |  |  | **\*** |  |  |  |
| EC 3.2 | Current Issues of Microbial Biotherapy and Functional Nutrition | |  |  | **\*** |  |  |  |
| EC 3.3 | English Clinical Medical Terminology | |  |  | **\*** |  |  |  |
| EC 3.4 | Nosocomial Infections | |  |  | **\*** |  |  |  |
| EC 3.5 | Pathogens of Current Airborne Infections | |  |  | **\*** |  |  |  |
| EC 3.6 | Clinical Biochemistry | |  |  | **\*** |  |  |  |
| EC 3.7 | Cell Technology in Medicine | |  |  | **\*** |  |  |  |
| EC 3.8 | Culture of Medical Professional Language and Communication | |  |  | **\*** |  |  |  |
| EC 3.9 | Medicinal Plants and Phytotherapy Principles | |  |  | **\*** |  |  |  |
| EC 3.10 | Therapeutic and Rehabilitation Massage | |  |  | **\*** |  |  |  |
| EC 3.11 | Medical Aspects of Bioterrorism | |  |  | **\*** |  |  |  |
| EC 3.12 | Human Microbial Ecology | |  |  | **\*** |  |  |  |
| EC 3.13 | Fundamentals of Electrocardiography | |  |  | **\*** |  |  |  |
| EC 3.14 | Fundamentals of Clinical and Laboratory Diagnostics | |  |  | **\*** |  |  |  |
| EC 3.15 | Fundamentals of Children Nutrition | |  |  | **\*** |  |  |  |
| EC 3.16 | Palliative Psychology | |  |  | **\*** |  |  |  |
| EC 3.17 | Professional Medical Communication of a Doctor with a Patient in Ukrainian | |  |  | **\*** |  |  |  |
| EC 3.18 | Psychophysiology | |  |  | **\*** |  |  |  |
| EC 3.19 | Functional Diagnostics of the Musculoskeletal System and Fundamentals of Muscle Testing and Electromyography | |  |  | **\*** |  |  |  |
| EC 3.20 | Neurobiochemistry | |  |  | **\*** |  |  |  |
| EC 3.21 | Pathological Biochemistry | |  |  | **\*** |  |  |  |
| Elective Block 4  (A student chooses 4 elective courses) | | | | | | | | |
| EC 4.1 | Current Issues of Endoscopy | |  |  |  | **\*** |  |  |
| EC 4.2 | Topical Issues of Minimally Invasive Surgery | |  |  |  | **\*** |  |  |
| EC 4.3 | Current Issues of Topical Diagnosis of Nervous System Pathology | |  |  |  | **\*** |  |  |
| EC 4.4 | Biopsy Diagnostics | |  |  |  | **\*** |  |  |
| EC 4.5 | Experimental Reconstructive Operative Surgery | |  |  |  | **\*** |  |  |
| EC 4.6 | Communicative Skills in Medical Practice | |  |  |  | **\*** |  |  |
| EC 4.7 | Microbiological Principles of Rational Antibiotic Therapy | |  |  |  | **\*** |  |  |
| EC 4.8 | Neuroanatomy | |  |  |  | **\*** |  |  |
| EC 4.9 | Basics of Somnology | |  |  |  | **\*** |  |  |
| EC 4.10 | Peculiarities of the Course of Internal Diseases in the Elderly | |  |  |  | **\*** |  |  |
| EC 4.11 | Pathophysiological Basics of Diagnosis and Treatment of Endocrine Diseases | |  |  |  | **\*** |  |  |
| EC 4.12 | Primary Palliative Care | |  |  |  | **\*** |  |  |
| EC 4.13 | Family Planning. Contraception | |  |  |  | **\*** |  |  |
| EC 4.14 | Practical Dietetics. Typological Features of Human Eating Behaviour | |  |  |  | **\*** |  |  |
| EC 4.15 | Preventive Medicine in Internal Diseases | |  |  |  | **\*** |  |  |
| EC 4.16 | Human Reproduction | |  |  |  | **\*** |  |  |
| EC 4.17 | Tropical Medicine | |  |  |  | **\*** |  |  |
| EC 4.18 | Art Therapy in the Field of Mental Health | |  |  |  | **\*** |  |  |
| EC 4.19 | Professional Medical Communications | |  |  |  | **\*** |  |  |
| EC 4.20 | Functional Diagnostics in Pulmonology | |  |  |  | **\*** |  |  |
| Elective Block 5  (A student chooses 3 elective courses) | | | | | | | | |
| EC 5.1 | Current Human Parasitic Diseases | |  |  |  |  | **\*** |  |
| EC 5.2 | Current Issues of Medical Genetics in Clinical Practice | |  |  |  |  | **\*** |  |
| EC 5.3 | Topical Issues of Palliative Care for Cancer Patients | |  |  |  |  | **\*** |  |
| EC 5.4 | Topical Issues of Plastic Surgery and Regenerative Medicine | |  |  |  |  | **\*** |  |
| EC 5.5 | Topical Issues of Early Diagnosis of the Ear, Throat, Nose Cancer | |  |  |  |  | **\*** |  |
| EC 5.6 | Current Issues of Cardiology | |  |  |  |  | **\*** |  |
| EC 5.7 | Internal Medicine. Management of Patients with Rare Pathology in the Clinical Picture of Internal Diseases | |  |  |  |  | **\*** |  |
| EC 5.8 | Defects in Medical Care: Types, Causes, Consequences | |  |  |  |  | **\*** |  |
| EC 5.9 | Experimental Plastic Surgery | |  |  |  |  | **\*** |  |
| EC 5.10 | Infectious Diarrhoea Pathogens | |  |  |  |  | **\*** |  |
| EC 5.11 | Fundamentals of Ultrasound Examination | |  |  |  |  | **\*** |  |
| EC 5.12 | Paediatric Otolaryngology | |  |  |  |  | **\*** |  |
| EC 5.13 | Palliative Care and Geriatrics | |  |  |  |  | **\*** |  |
| EC 5.14 | Pathophysiological Basics of Diagnosis and Treatment of Cardiovascular Diseases | |  |  |  |  | **\*** |  |
| EC 5.15 | Pathophysiology of Emergencies | |  |  |  |  | **\*** |  |
| EC 5.16 | Perinatal Care | |  |  |  |  | **\*** |  |
| EC 5.17 | Adolescent Medicine | |  |  |  |  | **\*** |  |
| EC 5.18 | Side Effects of Drugs | |  |  |  |  | **\*** |  |
| EC 5.19 | Section Course | |  |  |  |  | **\*** |  |
| EC 5.20 | Modern Biomarkers in Internal Diseases | |  |  |  |  | **\*** |  |
| EC 5.21 | Electronic Health System in Medical Practice | |  |  |  |  | **\*** |  |
| EC 5.22 | Fundamentals of Medical Cosmetology in Medical Practice | |  |  |  |  | **\*** |  |
| EC 5.23 | Evaluation of Medical Technologies | |  |  |  |  | **\*** |  |
| EC 5.24 | Specialized Medical Communications | |  |  |  |  | **\*** |  |
| EC 5.25 | Toxicology of Poisons and Poisoning. Chemical-Toxicological Analysis | |  |  |  |  | **\*** |  |
| Elective Block 6  (A student chooses specialization and 4 elective courses) | | | | | | | | |
| **Elective Specialization 6.1: Obstetrics and Gynaecology** | ES 6.1.1 | Gynaecological Endocrinology. Gynaecology of Children and Adolescents |  |  |  |  |  | **\*** |
| ES 6.1.2 | Application of E-Health in the Practice of Obstetrician-Gynaecologist |  |  |  |  |  | **\*** |
| ES 6.1.3 | Oncogynaecology |  |  |  |  |  | **\*** |
| ES 6.1.4 | Perinatology and Reproductive Gynaecology |  |  |  |  |  | **\*** |
| ES 6.1.5 | Modern Aspects of Family Planning |  |  |  |  |  | **\*** |
| ES 6.1.6 | Functional and Laboratory Diagnostics in Obstetrics and Gynaecology |  |  |  |  |  | **\*** |
| **Elective Specialization 6.2: Internal Medicine** | ES 6.2.1 | Application of E-Health in the Practice of a Therapist |  |  |  |  |  | **\*** |
| ES 6.2.2 | Innovative Preventive Technologies in Internal Diseases |  |  |  |  |  | **\*** |
| ES 6.2.3 | Management of Patients after Invasive Interventions and Organ Transplantation |  |  |  |  |  | **\*** |
| ES 6.2.4 | Management of the Comorbid Patient in the Internal Medicine Clinic |  |  |  |  |  | **\*** |
| ES 6.2.5 | Functional and Laboratory Diagnostics in Internal Medicine |  |  |  |  |  | **\*** |
| **Elective Specialization 6.3: General Practice (Family Medicine)** | ES 6.3.1 | Current Issues of General Medical Practice |  |  |  |  |  | **\*** |
| ES 6.3.2 | Algorithm of Practical Use of the International Classification of Primary Care (ICPC2) |  |  |  |  |  | **\*** |
| ES 6.3.3 | Application of E-Health in the Practice of a Family Doctor |  |  |  |  |  | **\*** |
| ES 6.3.4 | Organizational Principles of Work of a General Practitioner–Family Doctor |  |  |  |  |  | **\*** |
| ES 6.3.5 | Functional and Laboratory Diagnostics in General Practice – Family Medicine |  |  |  |  |  | **\*** |
| **Elective Specialization 6.4: Surgery** | ES 6.4.1 | Application of E-Health in the Practice of a Surgeon |  |  |  |  |  | **\*** |
| ES 6.4.2 | Clinical Oncology |  |  |  |  |  | **\*** |
| ES 6.4.3 | Innovative Technologies in Surgery |  |  |  |  |  | **\*** |
| ES 6.4.4 | Cardiovascular and Interventional Surgery |  |  |  |  |  | **\*** |
| ES 6.4.5 | Transplantology |  |  |  |  |  | **\*** |
| ES 6.4.6 | Functional and Laboratory Diagnostics in Surgery |  |  |  |  |  | **\*** |
| EC 6.1 | Current Issues of Andrology | |  |  |  |  |  | **\*** |
| EC 6.2 | Current Issues of Neonatology | |  |  |  |  |  | **\*** |
| EC.6.3 | Current Issues of Otosurgery | |  |  |  |  |  | **\*** |
| EC 6.4 | Current Issues of Peripheral Nervous System Pathology | |  |  |  |  |  | **\*** |
| EC 6.5 | Current Issues of Transfusiology | |  |  |  |  |  | **\*** |
| EC 6.6 | Current Issues of Cerebrovascular Pathology | |  |  |  |  |  | **\*** |
| EC 6.7 | Vaccine Prophylaxis of Infectious Diseases | |  |  |  |  |  | **\*** |
| EC 6.8 | Gerontology in General Hospital Practice | |  |  |  |  |  | **\*** |
| EC 6.9 | ECG in Emergency Cardiology | |  |  |  |  |  | **\*** |
| EC 6.10 | Invasive Methods of Diagnosis and Treatment of Cardiac Diseases | |  |  |  |  |  | **\*** |
| EC 6.11 | Clinical Electroencephalography | |  |  |  |  |  | **\*** |
| EC 6.12 | Clinical Pathophysiology | |  |  |  |  |  | **\*** |
| EC 6.13 | Conflictology | |  |  |  |  |  | **\*** |
| EC 6.14 | Minimally Invasive Urology | |  |  |  |  |  | **\*** |
| EC 6.15 | Marketing of Medical Services | |  |  |  |  |  | **\*** |
| EC 6.16 | Methods in Auditory Research | |  |  |  |  |  | **\*** |
| EC 6.17 | Fundamentals of Electrophysiological Diagnostics | |  |  |  |  |  | **\*** |
| EC 6.18 | Theoretical and Practical Basics of Reflexology | |  |  |  |  |  | **\*** |
| EC 6.19 | Palliative Care and Pain Management | |  |  |  |  |  | **\*** |
| EC 6.20 | Palliative and Hospice Care | |  |  |  |  |  | **\*** |
| EC 6.21 | Physical and Rehabilitation Medicine | |  |  |  |  |  | **\*** |
| EC 6.22 | Functional Diagnostics of Sensory Systems | |  |  |  |  |  | **\*** |
| EC 6.23 | Outpatient Surgery | |  |  |  |  |  | **\*** |
| EC 6.24 | Live Surgery in Gynaecology | |  |  |  |  |  | **\*** |
| EC 6.25 | Minimally Invasive, Endoscopic, and Outpatient Methods in Proctology | |  |  |  |  |  | **\*** |
| EC 6.26 | Fundamentals of Plastic Surgery | |  |  |  |  |  | **\*** |
| EC 6.27 | Modern Minimally Invasive and Outpatient Methods in Phlebology | |  |  |  |  |  | **\*** |
| EC 6.28 | Telemedicine | |  |  |  |  |  | **\*** |
| EC 6.29 | Surgical Infection | |  |  |  |  |  | **\*** |
| **Practical training** | | | | | | | | |
| CC 18 | Patient Care (Practical Training) | |  | **\*** |  |  |  |  |
| CC 28 | Practical Training in Nursing | |  |  | **\*** |  |  |  |
| CC 41 | Practical Training in General Medicine І | |  |  |  | **\*** |  |  |
| CC 51 | Practical Training in General Medicine ІІ | |  |  |  |  | **\*** |  |
| CC 61 | Practical Training in Medical Simulation | |  |  |  |  |  | **\*** |
| CC 62 | Specialized Practical Training | |  |  |  |  |  | **\*** |

**3. Form of students’ certification**

Students’ certification in the training program “General Medicine” at the second (Master’s) level of higher education in specialty 222 Medicine, branch of knowledge 22 Health care, is carried out in the form of a unified state qualification exam (USQE), the procedure for which is established by the resolution of the Cabinet of Ministers of Ukraine dated 28.03.2018 № 334 “On approval of the procedure for conducting a unified state qualification exam for Master’s degree students in the branch of knowledge 22 “Health care”.

USQE consists of the following components:

* the integrated test exam “KROK”, which is conducted in two stages – “KROK 1” (assessing the level of professional competence in general scientific (fundamental) disciplines) and “KROK 2” (assessing the level of professional competence in professionally oriented (clinical) disciplines);
* professional English language exam (the level of professional competence in professional English is assessed);
* an objective structured practical (clinical) exam (OSP(C)E), which is conducted in one stage (assesses the readiness of the graduate to carry out professional activities in accordance with the requirements of the standard of higher education by demonstrating practical (clinical) components of professional competence in a real object (person) or on a model (phantom, dummy, simulators, etc.).

The test components of the USQE are conducted by the Testing Centre at the Ministry of Health, and the practical (clinical) exam is conducted by the examination committee established at the higher education institution.

Certification is carried out openly and publicly.

Graduates who have successfully completed the training program and successfully passed the state certification are awarded a “Master’s Degree in Medicine” diploma.

**4. Matrix of correspondence of program competences to the components of the training program**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **GC 1** | | **GC 2** | | **GC 3** | | **GC 4** | | **GC 5** | | **GC 6** | | **GC 7** | | **GC 8** | | **GC 9** | | **GC 10** | | **GC 11** | | **GC 12** | | **GC 13** | | **GC 14** | | **GC 15** |
| CC 1 | \* | | \* | | \* | | \* | |  | |  | |  | | \* | | \* | |  | | \* | |  | |  | |  | | \* |
| CC 2 | \* | | \* | | \* | |  | |  | |  | |  | | \* | | \* | |  | | \* | |  | |  | |  | | \* |
| CC 3 | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| CC 4 | \* | |  | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | | \* | | \* | | \* | | \* |
| CC 5 | \* | | \* | |  | |  | |  | |  | | \* | | \* | |  | | \* | | \* | | \* | |  | |  | |  |
| CC 6 |  | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | | \* | |  | |  | |  | | \* |
| CC 7 | \* | | \* | | \* | | \* | |  | | \* | |  | |  | |  | |  | |  | |  | |  | |  | | \* |
| CC 8 | \* | | \* | |  | | \* | |  | |  | |  | | \* | |  | | \* | | \* | |  | |  | |  | |  |
| CC 9 | \* | | \* | | \* | |  | |  | |  | | \* | | \* | |  | | \* | | \* | |  | |  | |  | |  |
| CC 10 | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| CC 11 | \* | | \* | | \* | | \* | |  | | \* | |  | |  | |  | |  | | \* | |  | |  | |  | |  |
| CC 12 | \* | | \* | | \* | | \* | |  | | \* | |  | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |
| CC 13 | \* | | \* | | \* | | \* | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| CC 14 | \* | | \* | |  | |  | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| CC 15 | \* | | \* | | \* | |  | |  | | \* | | \* | |  | |  | |  | |  | |  | |  | |  | |  |
| CC 16 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | | \* | |  |
| CC 17 | \* | | \* | | \* | | \* | |  | |  | |  | |  | | \* | | \* | | \* | | \* | |  | |  | | \* |
| CC 18 | \* | | \* | | \* | |  | |  | | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | |  |
| CC 19 | \* | | \* | | \* | | \* | |  | | \* | |  | |  | |  | | \* | | \* | | \* | |  | |  | |  |
| CC 20 | \* | | \* | |  | |  | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| CC 21 | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| CC 22 | \* | | \* | |  | | \* | |  | |  | |  | | \* | | \* | | \* | | \* | |  | | \* | | \* | | \* |
| CC 23 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 24 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 25 | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | |  |
| CC 26 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | | \* | | \* | | \* | |  | |  | |  |
| CC 27 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 28 | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | |  |
| CC 29 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  |
| CC 30 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 31 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  |
| CC 32 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 33 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  |
| CC 34 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  |
| CC 35 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 36 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 37 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 38 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 39 | \* | | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 40 | \* | | \* | | \* | | \* | |  | | \* | |  | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 41 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | | \* | |  | |  | |  |
| CC 42 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 43 | \* | | \* | | \* | | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 44 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 45 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  |
| CC 46 | \* | | \* | | \* | | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | |  | |  | |  | |  |
| CC 47 | \* | | \* | | \* | |  | | \* | | \* | |  | | \* | | \* | |  | |  | |  | |  | |  | |  |
| CC 48 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  |
| CC 49 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 50 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | | \* | | \* |
| CC 51 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | | \* | |  | |  | | \* |
| CC 52 | \* | | \* | | \* | | \* | |  | |  | |  | |  | | \* | | \* | | \* | | \* | |  | |  | | \* |
| CC 53 | \* | | \* | |  | | \* | |  | | \* | | \* | | \* | |  | | \* | |  | | \* | |  | | \* | | \* |
| CC 54 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 55 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 56 | \* | | \* | | \* | | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 57 | \* | | \* | | \* | | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | |  | |  | |  | |  |
| CC 58 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  |
| CC 59 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 60 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| CC 61 |  | |  | | \* | |  | | \* | | \* | | \* | | \* | |  | |  | | \* | |  | |  | |  | |  |
| CC 62 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
|  | **GC 1** | | **GC 2** | | **GC 3** | | **GC 4** | | **GC 5** | | **GC 6** | | **GC 7** | | **GC 8** | | **GC 9** | | **GC 10** | | **GC 11** | | **GC 12** | | **GC 13** | | **GC 14** | | **GC 15** |
| EC 1.1 | \* | | \* | | \* | |  | |  | |  | |  | |  | | \* | |  | | \* | |  | |  | |  | |  |
| EC 1.2 | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | |  | | \* | |  | | \* | |  | |  |
| EC 1.3 | \* | |  | |  | |  | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 1.4 | \* | |  | | \* | |  | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 1.5 |  | | \* | | \* | |  | |  | |  | |  | | \* | | \* | |  | | \* | |  | |  | |  | | \* |
| EC 1.6 | \* | | \* | |  | | \* | |  | |  | |  | | \* | |  | |  | | \* | |  | |  | |  | | \* |
| EC 1.7 | \* | |  | | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 1.8 | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | | \* | | \* | | \* | |  | | \* | | \* |
| EC 1.9 |  | | \* | |  | |  | |  | |  | |  | | \* | |  | |  | | \* | |  | |  | | \* | |  |
| EC 1.10 | \* | |  | | \* | |  | |  | |  | |  | | \* | | \* | | \* | | \* | | \* | |  | | \* | |  |
| EC 1.11 | \* | |  | | \* | | \* | |  | | \* | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 1.12 | \* | | \* | |  | |  | |  | |  | |  | | \* | |  | |  | |  | | \* | | \* | | \* | | \* |
| EC 1.13 | \* | |  | | \* | | \* | |  | | \* | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 1.14 | \* | | \* | |  | | \* | | \* | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 2.1 | \* | |  | | \* | | \* | |  | | \* | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 2.2 | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | |  | | \* | |  | | \* | |  | |  |
| EC 2.3 |  | | \* | | \* | | \* | |  | |  | |  | |  | | \* | | \* | | \* | |  | |  | |  | | \* |
| EC 2.4 | \* | |  | | \* | | \* | |  | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 2.5 | \* | |  | | \* | |  | |  | |  | | \* | | \* | |  | | \* | | \* | | \* | |  | |  | |  |
| EC 2.6 | \* | |  | | \* | | \* | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 2.7 |  | | \* | | \* | |  | |  | |  | |  | | \* | | \* | | \* | | \* | |  | |  | |  | | \* |
| EC 2.8 | \* | | \* | | \* | | \* | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 2.9 | \* | | \* | |  | |  | |  | |  | |  | | \* | |  | |  | | \* | |  | |  | |  | | \* |
| EC 2.10 |  | | \* | | \* | |  | |  | |  | |  | | \* | |  | |  | | \* | |  | |  | | \* | |  |
| EC 2.11 | \* | |  | | \* | | \* | |  | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 2.12 | \* | | \* | | \* | | \* | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 2.13 | \* | | \* | | \* | | \* | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 2.14 | \* | | \* | |  | |  | |  | |  | |  | | \* | |  | |  | | \* | |  | |  | |  | | \* |
| EC 2.15 |  | | \* | | \* | |  | |  | |  | |  | | \* | |  | |  | | \* | |  | |  | | \* | |  |
| EC 3.1 | \* | | \* | |  | | \* | |  | | \* | |  | | \* | |  | | \* | | \* | |  | |  | |  | |  |
| EC 3.2 | \* | | \* | | \* | | \* | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 3.3 |  | | \* | | \* | |  | |  | |  | |  | | \* | | \* | | \* | | \* | |  | |  | |  | | \* |
| EC 3.4 | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 3.5 | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 3.6 | \* | | \* | | \* | | \* | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 3.7 | \* | | \* | |  | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  |
| EC 3.8 | \* | |  | | \* | | \* | |  | |  | | \* | | \* | | \* | | \* | | \* | |  | |  | | \* | |  |
| EC 3.9 | \* | | \* | | \* | | \* | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  | | \* |
| EC 3.10 | \* | |  | | \* | |  | |  | |  | |  | |  | | \* | | \* | | \* | | \* | |  | |  | |  |
| EC 3.11 | \* | | \* | | \* | | \* | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 3.12 | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  |
| EC 3.13 | \* | | \* | | \* | |  | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 3.14 | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 3.15 | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  |
| EC 3.16 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| EC 3.17 | \* | |  | | \* | | \* | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 3.18 | \* | |  | | \* | | \* | |  | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 3.19 | \* | | \* | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 3.20 | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| EC 3.21 | \* | |  | | \* | | \* | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* |
| EC 4.1 | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  |
| EC 4.2 | \* | | \* | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |
| EC 4.3 | \* | | \* | | \* | |  | |  | |  | |  | |  | |  | | \* | | \* | | \* | |  | |  | |  |
| EC 4.4 | \* | |  | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | | \* | |  | |  | |  |
| EC 4.5 | \* | | \* | | \* | |  | |  | | \* | | \* | |  | |  | |  | |  | |  | |  | |  | |  |
| EC 4.6 | \* | |  | | \* | | \* | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| EC 4.7 | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 4.8 | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 4.9 | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 4.10 | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 4.11 |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | | \* | | \* | |  | |  |
| EC 4.12 | \* | |  | | \* | | \* | | \* | | \* | |  | |  | | \* | | \* | | \* | | \* | | \* | |  | |  |
| EC 4.13 | \* | |  | | \* | | \* | |  | | \* | |  | |  | | \* | | \* | | \* | | \* | | \* | |  | |  |
| EC 4.14 | \* | |  | | \* | | \* | |  | | \* | |  | |  | | \* | | \* | | \* | | \* | | \* | |  | |  |
| EC 4.15 | \* | |  | | \* | | \* | |  | | \* | |  | |  | |  | | \* | | \* | | \* | | \* | |  | |  |
| EC 4.16 | \* | |  | | \* | | \* | |  | | \* | |  | |  | |  | | \* | | \* | | \* | | \* | |  | |  |
| EC 4.17 |  | | \* | | \* | |  | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |
| EC 4.18 | \* | | \* | | \* | |  | |  | | \* | | \* | |  | |  | |  | |  | |  | |  | |  | |  |
| EC 4.19 | \* | |  | | \* | | \* | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  |
| EC 4.20 | \* | | \* | | \* | |  | |  | |  | |  | |  | |  | | \* | | \* | | \* | |  | |  | |  |
|  | | **GC 1** | | **GC 2** | | **GC 3** | | **GC 4** | | **GC 5** | | **GC 6** | | **GC 7** | | **GC 8** | | **GC 9** | | **GC 10** | | **GC 11** | | **GC 12** | | **GC 13** | | **GC 14** | **GC 15** |
| EC 5.1 | |  | | \* | | \* | |  | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| EC 5.2 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  |  |
| EC 5.3 | | \* | | \* | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  | |  | | \* | | \* |  |
| EC 5.4 | | \* | | \* | |  | |  | | \* | |  | | \* | | \* | |  | |  | | \* | |  | |  | |  |  |
| EC 5.5 | | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| EC 5.6 | | \* | |  | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 5.7 | | \* | | \* | | \* | | \* | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| EC 5.8 | | \* | | \* | | \* | | \* | |  | | \* | |  | | \* | | \* | | \* | | \* | | \* | |  | |  |  |
| EC 5.9 | | \* | | \* | | \* | |  | |  | | \* | | \* | |  | |  | |  | |  | |  | |  | |  |  |
| EC 5.10 | | \* | |  | | \* | |  | |  | |  | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 5.11 | | \* | |  | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 5.12 | | \* | | \* | | \* | | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | |  | | \* | | \* | \* |
| EC 5.13 | | \* | |  | | \* | | \* | |  | | \* | |  | | \* | |  | | \* | | \* | | \* | | \* | |  |  |
| EC 5.14 | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | | \* | |  |  |
| EC 5.15 | | \* | | \* | |  | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |
| EC 5.16 | | \* | |  | | \* | | \* | | \* | | \* | |  | |  | |  | | \* | | \* | | \* | | \* | |  |  |
| EC 5.17 | |  | | \* | | \* | | \* | |  | |  | |  | |  | |  | | \* | |  | |  | | \* | |  |  |
| EC 5.18 | | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| EC 5.19 | | \* | | \* | | \* | | \* | |  | | \* | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 5.20 | | \* | | \* | |  | |  | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| EC 5.21 | | \* | |  | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 5.22 | | \* | | \* | | \* | | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | |  | | \* | | \* | \* |
| EC 5.23 | | \* | |  | | \* | | \* | |  | | \* | |  | | \* | |  | | \* | | \* | | \* | | \* | |  |  |
| EC 5.24 | |  | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | | \* | |  |  |
| EC 5.25 | | \* | | \* | |  | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |
| EC 6.1 | | \* | | \* | |  | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| EC 6.2 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  |  |
| EC 6.3 | | \* | | \* | | \* | | \* | |  | | \* | |  | |  | |  | |  | |  | |  | |  | |  |  |
| EC 6.4 | |  | | \* | |  | |  | |  | |  | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 6.5 | | \* | | \* | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |
| EC 6.6 | |  | | \* | |  | |  | |  | |  | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 6.7 | | \* | |  | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 6.8 | | \* | |  | | \* | | \* | |  | |  | |  | | \* | |  | | \* | | \* | | \* | |  | |  |  |
| EC 6.9 | | \* | | \* | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| EC 6.10 | | \* | |  | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 6.11 | | \* | | \* | | \* | | \* | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| EC 6.12 | | \* | | \* | |  | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |
| EC 6.13 | | \* | | \* | | \* | |  | |  | | \* | | \* | | \* | |  | |  | | \* | | \* | |  | |  |  |
| EC 6.14 | | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| EC 6.15 | | \* | | \* | |  | | \* | |  | |  | |  | | \* | |  | |  | |  | |  | |  | |  |  |
| EC 6.16 | |  | | \* | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| EC 6.17 | | \* | |  | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 6.18 | | \* | |  | | \* | |  | |  | |  | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 6.19 | |  | | \* | | \* | | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | | \* | | \* | |  |  |
| EC 6.20 | |  | |  | | \* | |  | | \* | | \* | |  | | \* | |  | |  | |  | |  | |  | |  |  |
| EC 6.21 | | \* | |  | | \* | | \* | | \* | |  | |  | | \* | |  | | \* | | \* | | \* | |  | |  |  |
| EC 6.22 | | \* | |  | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 6.23 | | \* | | \* | | \* | |  | |  | | \* | | \* | | \* | |  | |  | | \* | | \* | |  | |  |  |
| EC 6.24 | | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| EC 6.25 | | \* | | \* | |  | | \* | |  | |  | |  | | \* | |  | |  | |  | |  | |  | |  |  |
| EC 6.26 | |  | | \* | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| EC 6.27 | | \* | |  | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 6.28 | | \* | |  | | \* | |  | |  | |  | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| EC 6.29 | |  | | \* | | \* | | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | | \* | | \* | |  |  |
| Elective Specialization 6.1: Obstetrics and Gynaecology | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES 6.1.1 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |  |
| ES 6.1.2 | | \* | | \* | |  | | \* | | \* | |  | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| ES 6.1.3 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |  |
| ES 6.1.4 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |  |
| ES 6.1.5 | | \* | | \* | | \* | | \* | |  | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  |  |
| ES 6.1.6 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |  |
| Elective Specialization 6.2: Internal Medicine | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES 6.2.1 | | \* | | \* | |  | | \* | | \* | |  | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| ES 6.2.2 | | \* | |  | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| ES 6.2.3 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |  |
| ES 6.2.4 | | \* | |  | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |
| ES 6.2.5 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |  |
| Elective Specialization 6.3: General Practice - Family Medicine | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES 6.3.1 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |  |
| ES 6.3.2 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |  |
| ES 6.3.3 | | \* | | \* | |  | | \* | | \* | |  | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| ES 6.3.4 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |  |
| ES 6.3.5 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |  |
| Elective Specialization 6.4: Surgery | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES 6.4.1 | | \* | | \* | |  | | \* | | \* | |  | |  | |  | |  | | \* | | \* | |  | |  | |  |  |
| ES 6.4.2 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |  |
| ES 6.4.3 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |  |
| ES 6.4.4 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | |  | \* |
| ES 6.4.5 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  | |  | |  | \* |
| ES 6.4.6 | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **PC 1** | | | **PC 2** | | | **PC 3** | | | **PC 4** | | **PC 5** | | **PC 6** | | | **PC 7** | | | **PC 8** | | | **PC 9** | | | **PC 10** | | | **PC 11** | | **PC 12** | | **PC 13** | | **PC 14** | | **PC 15** | | **PC 16** | | **PC 17** | | **PC 18** | | **PC 19** | | **PC 20** | **PC 21** | **PC 22** | **PC 23** | | **PC 24** | | **PC 25** |
| CC 1 |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  |  | |  | |  |
| CC 2 |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  | \* |  |  | | \* | |  |
| CC 3 |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| CC 4 |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | | \* | | \* | |  | |  |  |  | \* | |  | | \* |
| CC 5 |  | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  | |  | |  |
| CC 6 |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  | \* |  |  | |  | |  |
| CC 7 | \* | | | \* | | |  | | |  | |  | | \* | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  | |  | |  |
| CC 8 |  | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | | \* | \* |  | \* | |  | | \* |
| CC 9 |  | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  | \* | |  | | \* |
| CC 10 |  | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| CC 11 |  | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| CC 12 |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  | \* | | \* | | \* |
| CC 13 |  | | | \* | | | \* | | |  | |  | | \* | | | \* | | |  | | |  | | |  | | | \* | |  | |  | | \* | |  | |  | |  | |  | |  | |  |  |  | \* | |  | |  |
| CC 14 |  | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  | \* | |  | |  |
| CC 15 |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | | \* | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| CC 16 | \* | | |  | | | \* | | | \* | | \* | |  | | | \* | | | \* | | | \* | | | \* | | | \* | |  | | \* | | \* | |  | | \* | | \* | |  | |  | |  |  | \* |  | | \* | | \* |
| CC 17 |  | | |  | | |  | | | \* | | \* | |  | | |  | | |  | | |  | | |  | | |  | |  | | \* | | \* | |  | |  | | \* | |  | |  | | \* |  |  |  | |  | | \* |
| CC 18 | \* | | | \* | | |  | | |  | |  | |  | | | \* | | |  | | |  | | | \* | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| CC 19 |  | | | \* | | | \* | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | | \* | |  | | \* | |  | |  | \* |  |  | |  | | \* |
| CC 20 | \* | | |  | | |  | | |  | |  | | \* | | | \* | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  |  | |  | | \* |
| CC 21 | \* | | |  | | |  | | |  | | \* | | \* | | |  | | | \* | | |  | | |  | | |  | | \* | |  | |  | |  | | \* | |  | |  | |  | | \* | \* |  |  | | \* | | \* |
| CC 22 |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | | \* | |  | | \* | |  | |  | | \* | | \* | |  | |  | | \* | \* |  | \* | | \* | | \* |
| CC 23 | \* | | | \* | | | \* | | | \* | | \* | | \* | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  |  |  |  | | \* | | \* |
| CC 24 | \* | | | \* | | | \* | | | \* | | \* | | \* | | |  | | |  | | |  | | | \* | | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  |  |  |  | | \* | | \* |
| CC 25 | \* | | | \* | | | \* | | |  | |  | | \* | | | \* | | |  | | |  | | | \* | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| CC 26 | \* | | | \* | | | \* | | |  | |  | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | | \* | |  |
| CC 27 | \* | | | \* | | | \* | | |  | |  | |  | | |  | | |  | | |  | | | \* | | | \* | |  | | \* | |  | |  | | \* | | \* | | \* | |  | |  | \* |  |  | | \* | | \* |
| CC 28 | \* | | | \* | | |  | | |  | |  | |  | | | \* | | |  | | |  | | | \* | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | | \* | |  |
| CC 29 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  |  |  |  | | \* | |  |
| CC 30 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  |  |  |  | | \* | |  |
| CC 31 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  |  |  |  | | \* | |  |
| CC 32 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | | \* | |  | |  | |  | | \* | |  | |  | |  | |  |  |  |  | | \* | | \* |
| CC 33 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |  |  |  | | \* | |  |
| CC 34 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |  |  |  | | \* | | \* |
| CC 35 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |  |  |  | | \* | | \* |
| CC 36 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |  |  |  | | \* | | \* |
| CC 37 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | | \* | |  | | \* | |  | | \* | | \* | | \* | | \* | |  | |  | \* |  |  | | \* | | \* |
| CC 38 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | | \* | |  | | \* | | \* | | \* | | \* | |  | | \* | |  | |  | \* |  |  | | \* | | \* |
| CC 39 | \* | | | \* | | | \* | | | \* | | \* | | \* | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  | \* |  |  | | \* | | \* |
| CC 40 | \* | | | \* | | | \* | | |  | |  | | \* | | | \* | | | \* | | |  | | |  | | | \* | |  | |  | |  | |  | | \* | | \* | | \* | |  | |  | \* | \* |  | | \* | | \* |
| CC 41 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | \* | |  | |  | | \* | | \* | |  | |  | |  | | \* | \* |  |  | | \* | |  |
| CC 42 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | |  | | \* | |  | |  | |  | |  | | \* | \* |  | \* | | \* | | \* |
| CC 43 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | |  | | \* | | \* | |  | |  | |  | |  | |  | | \* | \* |  |  | | \* | | \* |
| CC 44 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | |  | | |  | | | \* | | |  | |  | | \* | |  | |  | |  | | \* | | \* | |  | |  | \* |  |  | | \* | | \* |
| CC 45 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | |  | | | \* | |  | |  | |  | | \* | | \* | |  | | \* | |  | |  | \* |  |  | | \* | |  |
| CC 46 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |  |  |  | | \* | | \* |
| CC 47 | \* | | | \* | | | \* | | | \* | | \* | |  | | | \* | | | \* | | |  | | |  | | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |  |  |  | | \* | | \* |
| CC 48 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | | \* | | \* | |  | |  | |  | | \* | |  | |  | \* |  |  | | \* | | \* |
| CC 49 | \* | | | \* | | | \* | | |  | |  | |  | | | \* | | | \* | | |  | | | \* | | | \* | |  | |  | |  | |  | | \* | |  | |  | |  | |  |  |  |  | | \* | | \* |
| CC 50 | \* | | | \* | | | \* | | |  | |  | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | |  | |  | |  | |  | | \* | |  | |  | |  | |  |  |  |  | | \* | | \* |
| CC 51 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | \* | |  | |  | | \* | | \* | |  | |  | |  | | \* | \* |  |  | | \* | |  |
| CC 52 |  | | |  | | |  | | | \* | | \* | |  | | |  | | |  | | |  | | |  | | |  | |  | | \* | | \* | |  | |  | | \* | |  | |  | | \* |  |  |  | |  | | \* |
| CC 53 |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | | \* | |  | | \* | |  | | \* | | \* | | \* | | \* | | \* | | \* | \* | \* | \* | |  | |  |
| CC 54 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | |  | | \* | |  | |  | |  | |  | | \* | \* |  | \* | | \* | | \* |
| CC 55 | \* | | | \* | | | \* | | |  | |  | | \* | | | \* | | | \* | | |  | | | \* | | | \* | |  | |  | |  | |  | | \* | |  | |  | |  | |  |  |  |  | | \* | |  |
| CC 56 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | |  | | \* | | \* | |  | |  | |  | |  | |  | | \* | \* |  |  | | \* | | \* |
| CC 57 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | |  | |  | |  | | \* | | \* | |  | |  | |  | |  |  |  |  | | \* | | \* |
| CC 58 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | |  | | | \* | |  | |  | |  | |  | | \* | |  | |  | |  | |  | \* |  |  | | \* | |  |
| CC 59 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | | \* | |  | |  | |  | | \* | |  | |  | |  | |  |  |  |  | | \* | | \* |
| CC 60 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | | \* | | \* | | \* | | \* | | \* | | \* | |  | |  | |  | |  |  |  |  | | \* | |  |
| CC 61 | \* | | | \* | | | \* | | |  | |  | |  | | | \* | | | \* | | | \* | | | \* | | |  | | \* | |  | |  | |  | |  | |  | |  | |  | |  |  |  | \* | | \* | | \* |
| CC 62 | \* | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | | \* | | \* | |  | |  | | \* | | \* | | \* | |  | |  | |  |  |  |  | | \* | | \* |
|  | | **PC 1** | | | **PC 2** | | | **PC 3** | | **PC 4** | | **PC 5** | | | **PC 6** | | | **PC 7** | | | **PC 8** | | | **PC 9** | | | **PC 10** | | **PC 11** | | **PC 12** | | **PC 13** | | **PC 14** | | **PC 15** | | **PC 16** | | **PC 17** | | **PC 18** | | **PC 19** | | **PC 20** | **PC 21** | **PC 22** | **PC 23** | | **PC 24** | | **PC 25** |
| EC 1.1 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  | \* | |  | | \* |
| EC 1.2 | |  | | |  | | |  | |  | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  | \* |  |  | |  | |  |
| EC 1.3 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  | | \* | | \* |
| EC 1.4 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | | \* |
| EC 1.5 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  |  | |  | |  |
| EC 1.6 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  | \* | |  | |  |
| EC 1.7 | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  |  | | \* | | \* |
| EC 1.8 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  | \* |  |  | |  | | \* |
| EC 1.9 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | | \* |
| EC 1.10 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | \* | \* | \* | |  | |  |
| EC 1.11 | |  | | | \* | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  | \* |  |  | |  | | \* |
| EC 1.12 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  | \* |  |  | |  | |  |
| EC 1.13 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  |  | | \* | | \* |
| EC 1.14 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | | \* |
| EC 2.1 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | | \* |
| EC 2.2 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  | |  | | \* |
| EC 2.3 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  |  | |  | | \* |
| EC 2.4 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  | \* | | \* | | \* |
| EC 2.5 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  | \* |  | |  | |  |
| EC 2.6 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  | \* | | \* | | \* |
| EC 2.7 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  |  | |  | | \* |
| EC 2.8 | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | \* | \* | \* | | \* | | \* |
| EC 2.9 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | | \* | |  | |  |  |  | \* | |  | |  |
| EC 2.10 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | | \* | \* | \* |  | |  | | \* |
| EC 2.11 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  | \* | \* |  | |  | |  |
| EC 2.12 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  | |  | | \* |
| EC 2.13 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  |  | |  | | \* |
| EC 2.14 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  | \* | | \* | | \* |
| EC 2.15 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  | \* |  | |  | |  |
| EC 3.1 | | \* | | |  | | |  | |  | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | | \* | \* |  |  | |  | |  |
| EC 3.2 | |  | | | \* | | | \* | |  | |  | | | \* | | | \* | | |  | | |  | | |  | | \* | |  | |  | | \* | |  | |  | |  | |  | |  | |  |  |  | \* | |  | |  |
| EC 3.3 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  |  | |  | | \* |
| EC 3.4 | | \* | | | \* | | | \* | |  | |  | | | \* | | |  | | |  | | |  | | | \* | |  | |  | | \* | | \* | |  | |  | | \* | |  | |  | |  |  |  |  | |  | | \* |
| EC 3.5 | |  | | | \* | | |  | |  | |  | | | \* | | |  | | |  | | |  | | | \* | |  | |  | |  | | \* | |  | |  | |  | |  | |  | |  |  |  | \* | |  | |  |
| EC 3.6 | | \* | | | \* | | |  | |  | |  | | |  | | | \* | | |  | | |  | | | \* | |  | |  | |  | |  | |  | | \* | |  | |  | |  | |  |  |  |  | |  | | \* |
| EC 3.7 | |  | | | \* | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  | |  | |  |
| EC 3.8 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  |  | | \* | | \* |
| EC 3.9 | |  | | |  | | |  | |  | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  | |  | |  |
| EC 3.10 | | \* | | |  | | |  | | \* | | \* | | | \* | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  |  | |  | |  |
| EC 3.11 | |  | | | \* | | | \* | |  | |  | | | \* | | | \* | | |  | | |  | | |  | | \* | |  | |  | | \* | |  | |  | |  | |  | |  | |  |  |  | \* | |  | |  |
| EC 3.12 | |  | | | \* | | |  | |  | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | | \* | | \* | |  | |  | | \* | |  | |  | |  |  |  |  | |  | |  |
| EC 3.13 | | \* | | | \* | | |  | |  | |  | | |  | | | \* | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| EC 3.14 | | \* | | | \* | | |  | |  | |  | | |  | | | \* | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  | \* | |  | | \* |
| EC 3.15 | | \* | | |  | | |  | |  | | \* | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  | \* |  | |  | |  |
| EC 3.16 | | \* | | | \* | | | \* | |  | |  | | |  | | |  | | |  | | |  | | | \* | | \* | |  | | \* | |  | |  | | \* | | \* | | \* | |  | |  | \* |  |  | | \* | | \* |
| EC 3.17 | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  |  |  |  | | \* | |  |
| EC 3.18 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  | \* | | \* | | \* |
| EC 3.19 | | \* | | | \* | | |  | |  | |  | | |  | | | \* | | |  | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| EC 3.20 | | \* | | |  | | |  | | \* | | \* | | | \* | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  |  | |  | |  |
| EC 3.21 | |  | | | \* | | | \* | |  | |  | | | \* | | | \* | | |  | | |  | | |  | | \* | |  | |  | | \* | |  | |  | |  | |  | |  | |  |  |  | \* | |  | |  |
| EC 4.1 | | \* | | | \* | | | \* | |  | |  | | |  | | |  | | | \* | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| EC 4.2 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| EC 4.3 | | \* | | | \* | | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| EC 4.4 | | \* | | | \* | | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  |  |  | \* | |  | |  |
| EC 4.5 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| EC 4.6 | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  | \* |  |  | | \* | | \* |
| EC 4.7 | |  | | | \* | | |  | |  | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  | \* | \* | |  | |  |
| EC 4.8 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| EC 4.9 | | \* | | | \* | | | \* | | \* | | \* | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  | \* | |  | |  |
| EC 4.10 | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| EC 4.11 | |  | | |  | | |  | | \* | | \* | | |  | | |  | | |  | | |  | | | \* | | \* | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  | |  | |  |
| EC 4.12 | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | |  | | | \* | |  | |  | | \* | | \* | |  | |  | |  | |  | |  | |  | \* |  |  | | \* | |  |
| EC 4.13 | | \* | | | \* | | |  | | \* | | \* | | | \* | | |  | | |  | | |  | | | \* | |  | | \* | | \* | |  | |  | | \* | | \* | |  | |  | |  |  |  |  | | \* | |  |
| EC 4.14 | | \* | | |  | | |  | |  | | \* | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  | \* |  |  | |  | |  |
| EC 4.15 | | \* | | | \* | | | \* | | \* | | \* | | | \* | | |  | | |  | | |  | | | \* | |  | |  | | \* | | \* | |  | |  | | \* | |  | |  | |  | \* |  | \* | | \* | |  |
| EC 4.16 | | \* | | | \* | | | \* | | \* | | \* | | | \* | | |  | | |  | | |  | | | \* | |  | | \* | | \* | |  | |  | |  | | \* | |  | |  | |  |  |  |  | | \* | |  |
| EC 4.17 | | \* | | | \* | | | \* | |  | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | | \* | | \* | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| EC 4.18 | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
| EC 4.19 | | \* | | | \* | | | \* | | \* | | \* | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  | \* | |  | |  |
| EC 4.20 | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | |  | |  |
|  | | | **PC 1** | | | **PC 2** | | | **PC 3** | | **PC 4** | | **PC 5** | | | **PC 6** | | | **PC 7** | | | **PC 8** | | | **PC 9** | | | **PC 10** | | **PC 11** | | **PC 12** | | **PC 13** | | **PC 14** | | **PC 15** | | **PC 16** | | **PC 17** | | **PC 18** | | **PC 19** | **PC 20** | **PC 21** | **PC 22** | **PC 23** | **PC 24** | | **PC 25** | |
| EC 5.1 | | | \* | | | \* | | | \* | |  | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | | \* | | \* | |  | |  | |  | |  | |  |  |  |  |  |  | |  | |
| EC 5.2 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | |  | | \* | |  | |  | |  | |  | |  | |  | |  | |  |  | \* |  |  |  | |  | |
| EC 5.3 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | |  |  | \* | \* | \* | \* | |  | |
| EC5.4 | | | \* | | | \* | | | \* | | \* | | \* | | |  | | | \* | | | \* | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  |  | |  | |
| EC 5.5 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  |  | |  | |
| EC 5.6 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  | \* |  | \* | \* | |  | |
| EC 5.7 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | |  | | |  | | |  | | |  | |  | |  | |  | |  | | \* | | \* | | \* | |  | |  |  |  |  |  | \* | |  | |
| EC 5.8 | | | \* | | | \* | | | \* | |  | |  | | | \* | | | \* | | | \* | | |  | | |  | | \* | |  | |  | |  | |  | | \* | | \* | | \* | |  |  | \* | \* |  | \* | | \* | |
| EC 5.9 | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  |  | |  | |
| EC 5.10 | | | \* | | | \* | | |  | |  | |  | | | \* | | |  | | | \* | | |  | | | \* | |  | |  | | \* | | \* | |  | |  | | \* | |  | |  |  | \* |  |  |  | |  | |
| EC 5.11 | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | \* |  | |  | |
| EC 5.12 | | | \* | | | \* | | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | \* | | \* | | \* | |  | | \* | |  | |  |  |  |  |  |  | |  | |
| EC 5.13 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | | \* | |  |  | \* | \* | \* | \* | |  | |
| EC 5.14 | | |  | | |  | | |  | |  | | \* | | |  | | |  | | |  | | |  | | | \* | | \* | |  | |  | |  | |  | |  | | \* | |  | |  |  |  |  |  |  | |  | |
| EC 5.15 | | |  | | |  | | |  | |  | |  | | |  | | | \* | | | \* | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  |  | |  | |
| EC 5.16 | | | \* | | | \* | | | \* | | \* | |  | | | \* | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  | \* | |  | |
| EC 5.17 | | | \* | | | \* | | | \* | | \* | | \* | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  |  | \* |  |  | \* | |  | |
| EC 5.18 | | | \* | | |  | | |  | |  | | \* | | | \* | | |  | | | \* | | |  | | |  | |  | | \* | |  | |  | |  | |  | |  | |  | |  | \* | \* |  |  | \* | |  | |
| EC 5.19 | | | \* | | |  | | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | | \* | |  |  | \* |  | \* |  | | \* | |
| EC 5.20 | | | \* | | | \* | | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | \* | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | \* |  | | \* | |
| EC 5.21 | | | \* | | | \* | | | \* | | \* | |  | | | \* | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  | \* | |  | |
| EC 5.22 | | | \* | | | \* | | | \* | | \* | | \* | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | |  | |  |  | \* |  |  | \* | |  | |
| EC 5.23 | | | \* | | |  | | |  | |  | | \* | | | \* | | |  | | | \* | | |  | | |  | |  | | \* | |  | |  | |  | |  | |  | |  | |  | \* | \* |  |  | \* | |  | |
| EC 5.24 | | | \* | | |  | | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | | \* | |  |  | \* |  | \* |  | | \* | |
| EC 5.25 | | | \* | | | \* | | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | \* | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | \* |  | | \* | |
| EC 6.1 | | | \* | | | \* | | | \* | |  | |  | | | \* | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  |  | |  | |
| EC 6.2 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  | \* |  |  |  | |  | |
| EC 6.3 | | | \* | | | \* | | | \* | |  | | \* | | | \* | | | \* | | | \* | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  |  | |  | |
| EC 6.4 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | \* | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  | \* | | \* | |
| EC 6.5 | | | \* | | | \* | | | \* | |  | |  | | | \* | | | \* | | |  | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  |  | |  | |
| EC 6.6 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | \* | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  | \* | |  | |
| EC 6.7 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | \* | |  | | \* | | \* | |  | |  | |  | |  | | \* | \* | \* |  | \* |  | |  | |
| EC 6.8 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | | \* | |  | |  | |  | | \* | | \* | |  |  | \* |  |  | \* | |  | |
| EC 6.9 | | | \* | | | \* | | | \* | |  | |  | | |  | | | \* | | | \* | | |  | | | \* | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  | \* |  | |  | |
| EC 6.10 | | | \* | | | \* | | | \* | | \* | |  | | | \* | | | \* | | | \* | | | \* | | | \* | |  | |  | | \* | |  | |  | | \* | |  | | \* | |  |  |  |  | \* |  | |  | |
| EC 6.11 | | | \* | | | \* | | | \* | |  | |  | | |  | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  | \* |  | |  | |
| EC 6.12 | | | \* | | | \* | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  | \* |  |  |  | |  | |
| EC 6.13 | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  | \* |  |  | \* | |  | |
| EC 6.14 | | | \* | | | \* | | | \* | |  | |  | | | \* | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  |  |  |  |  |  | |  | |
| EC 6.15 | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | | \* | | \* | \* |  |  | \* |  | |  | |
| EC 6.16 | | | \* | | | \* | | | \* | |  | |  | | |  | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  | \* | \* | |  | |
| EC 6.17 | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | \* |  | |  | |
| EC 6.18 | | | \* | | | \* | | | \* | |  | |  | | | \* | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  | \* |  | \* |  | |  | |
| EC 6.19 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | | \* | |  | | \* | |  |  | \* | \* | \* | \* | |  | |
| EC 6.20 | | | \* | | | \* | | | \* | |  | |  | | |  | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  |  | \* | |  | |
| EC 6.21 | | | \* | | | \* | | | \* | | \* | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  | \* | |  | |
| EC 6.22 | | |  | | | \* | | |  | |  | |  | | |  | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | \* |  | |  | |
| EC 6.23 | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  | \* |  |  | \* | |  | |
| EC 6.24 | | | \* | | | \* | | | \* | |  | |  | | | \* | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | | \* | | \* | |  | |  |  |  |  |  |  | |  | |
| EC 6.25 | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | | \* | | \* | | \* | \* |  |  | \* |  | |  | |
| EC 6.26 | | | \* | | | \* | | | \* | |  | |  | | |  | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  | \* | \* | |  | |
| EC 6.27 | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  | \* |  | |  | |
| EC 6.28 | | | \* | | | \* | | | \* | |  | |  | | | \* | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  | \* |  | \* |  | |  | |
| EC 6.29 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | |  | | |  | | |  | | | \* | |  | |  | |  | |  | |  | | \* | |  | | \* | |  |  | \* | \* | \* | \* | |  | |
| Elective Specialization 6.1: Obstetrics and Gynaecology | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES 6.1.1 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | \* | |  | |  | | \* | |  | | \* | |  | |  | |  |  |  |  |  | \* | | \* | |
| ES 6.1.2 | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  | \* |  |  |  |  | |  | |
| ES 6.1.3 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | \* | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  |  | \* | | \* | |
| ES 6.1.4 | | | \* | | | \* | | | \* | | \* | |  | | | \* | | |  | | |  | | |  | | | \* | | \* | | \* | |  | |  | |  | | \* | |  | |  | |  |  |  |  |  | \* | | \* | |
| ES 6.1.5 | | | \* | | | \* | | |  | | \* | | \* | | | \* | | |  | | |  | | |  | | | \* | |  | | \* | | \* | |  | |  | | \* | | \* | |  | |  |  |  |  |  | \* | |  | |
| ES 6.1.6 | | | \* | | | \* | | | \* | |  | |  | | |  | | | \* | | |  | | |  | | | \* | | \* | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  |  | \* | |  | |
| Elective Specialization 6.2: Internal Medicine | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES 6.2.1 | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  | \* |  |  |  |  | |  | |
| ES 6.2.2 | | | \* | | | \* | | | \* | | \* | |  | | | \* | | | \* | | | \* | | | \* | | | \* | |  | |  | | \* | |  | |  | | \* | |  | | \* | |  |  |  |  | \* |  | |  | |
| ES 6.2.3 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | \* | |  | |  | |  | | \* | | \* | |  | |  | |  |  |  |  |  |  | |  | |
| ES 6.2.4 | | | \* | | | \* | | | \* | | \* | |  | | | \* | | | \* | | | \* | | | \* | | | \* | |  | |  | | \* | |  | |  | | \* | |  | | \* | |  |  |  |  | \* |  | |  | |
| ES 6.2.5 | | | \* | | | \* | | | \* | |  | |  | | |  | | | \* | | |  | | |  | | | \* | | \* | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  |  | \* | |  | |
| Elective Specialization 6.3: General Practice - Family Medicine | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES 6.3.1 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | |  | | |  | | |  | | |  | | \* | |  | | \* | | \* | | \* | | \* | |  | |  | |  |  |  |  |  | \* | |  | |
| ES 6.3.2 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | |  | | |  | | |  | | |  | | \* | |  | | \* | | \* | | \* | | \* | |  | |  | |  |  |  |  |  | \* | |  | |
| ES 6.3.3 | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  | \* |  |  |  |  | |  | |
| ES 6.3.4 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | |  | | |  | | |  | | |  | | \* | |  | | \* | | \* | | \* | | \* | |  | |  | |  |  |  |  |  | \* | |  | |
| ES 6.3.5 | | | \* | | | \* | | | \* | |  | |  | | |  | | | \* | | |  | | |  | | | \* | | \* | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  |  | \* | |  | |
| Elective Specialization 6.4: Surgery | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES 6.4.1 | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | |  | |  | |  | | \* | |  | |  | |  | \* |  |  |  |  | |  | |
| ES 6.4.2 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | |  | | |  | | | \* | |  | |  | | \* | |  | |  | |  | | \* | | \* | |  |  | \* |  |  | \* | | \* | |
| ES 6.4.3 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | \* | |  | | \* | | \* | | \* | | \* | |  | |  | |  |  |  |  |  | \* | |  | |
| ES 6.4.4 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | |  | | | \* | | | \* | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  |  | |  | |
| ES 6.4.5 | | | \* | | | \* | | | \* | | \* | | \* | | | \* | | |  | | | \* | | | \* | | | \* | |  | |  | |  | |  | |  | |  | |  | |  | |  |  |  |  |  |  | |  | |
| ES 6.4.6 | | | \* | | | \* | | | \* | |  | |  | | |  | | | \* | | |  | | |  | | | \* | | \* | |  | |  | |  | |  | | \* | |  | |  | |  |  |  |  |  | \* | |  | |

**5. The matrix of providing program learning outcomes (PLO) by the relevant components of the training program**

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **PLO 1** | | **PLO 2** | | **PLO 3** | | **PLO 4** | | **PLO 5** | | **PLO 6** | | | **PLO 7** | | | **PLO 8** | | | **PLO 9** | | | **PLO 10** | | | **PLO 11** | | | **PLO 12** | | | **PLO 13** | | | **PLO 14** | | | | **PLO 15** | | | **PLO 16** | | | **PLO 17** | | | **PLO 18** | | | **PLO 19** | | | **PLO 20** | | | **PLO 21** | | | **PLO 22** | | | **PLO 23** | | | **PLO 24** | | | **PLO 25** | | | **PLO 26** | | | **PLO 27** | | | **PLO 28** | | **PLO 29** |
| CC 1 | \* | |  | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | | |  | |  |
| CC 2 |  | |  | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | | |  | |  |
| CC 3 |  | |  | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | |  |
| CC 4 | \* | |  | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | |  | | | \* | | |  | |  |
| CC 5 | \* | | \* | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | |  |
| CC 6 | \* | |  | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | | |  | |  |
| CC 7 | \* | | \* | | \* | |  | |  | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  |
| CC 8 | \* | | \* | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | | \* | | |  | |  |
| CC 9 | \* | | \* | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | |  |
| CC 10 | \* | | \* | | \* | |  | | \* | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  |
| CC 11 | \* | | \* | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  |
| CC 12 | \* | | \* | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | |  | | | \* | |  |
| CC 13 | \* | | \* | | \* | |  | |  | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | \* |
| CC 14 | \* | | \* | | \* | |  | |  | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | |  |
| CC 15 | \* | | \* | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  |
| CC 16 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | | | \* | | |  | | | \* | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | | |  | | | \* | | |  | | | \* | |  |
| CC 17 | \* | | \* | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | |  |
| CC 18 | \* | | \* | |  | |  | | \* | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | |  |
| CC 19 | \* | | \* | | \* | |  | |  | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | | \* | | | \* | | |  | | |  | | | \* | |  |
| CC 20 | \* | | \* | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  |
| CC 21 | \* | | \* | | \* | |  | |  | |  | | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | | | \* | | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | |  |
| CC 22 | \* | | \* | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | | \* | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | |  | | \* |
| CC 23 | \* | | \* | | \* | | \* | | \* | |  | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | |  |
| CC 24 | \* | | \* | |  | | \* | | \* | |  | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | |  | | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  |
| CC 25 | \* | | \* | | \* | | \* | | \* | |  | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | | \* | | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | |  | | | \* | | |  | |  |
| CC 26 | \* | | \* | |  | | \* | |  | |  | | | \* | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  |
| CC 27 | \* | | \* | |  | | \* | | \* | |  | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | | \* | | | \* | | | \* | | |  | | | \* | | |  | |  |
| CC 28 | \* | | \* | | \* | |  | | \* | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | | |  | | | \* | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | |  | |  |
| CC 29 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | | |  | | | \* | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  |
| CC 30 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  |
| CC 31 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  |
| CC 32 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | |  |
| CC 33 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | | \* | | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  |
| CC 34 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | |  |
| CC 35 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | | |  | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | |  |
| CC 36 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | | |  | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | | \* | | |  | |  |
| CC 37 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | | \* | | | \* | | | \* | | |  | | | \* | | |  | |  |
| CC 38 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | | |  | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | |  | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  |
| CC 39 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  |
| CC 40 | \* | | \* | | \* | | \* | | \* | | \* | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | | \* | | |  | |  |
| CC 41 | \* | | \* | |  | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | |  |
| CC 42 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | | |  | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | \* |
| CC 43 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | | |  | | |  | | | \* | | |  | | | \* | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | \* |
| CC 44 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | |  |
| CC 45 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | | \* | | | \* | | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | |  |
| CC 46 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | | \* | | | \* | | | | \* | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | |  |
| CC 47 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | | |  | | |  | | | \* | | | | \* | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | |  | |  |
| CC 48 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | | |  | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | | | \* | | | \* | | |  | | | \* | | | \* | | \* |
| CC 49 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | | \* | | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | |  |
| CC 50 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | | \* | | | | \* | | |  | | | \* | | |  | | |  | | |  | | | \* | | | \* | | |  | | | \* | | |  | | |  | | | \* | | |  | |  |
| CC 51 | \* | | \* | |  | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | |  | | |  | | | \* | | | \* | | |  | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | |  | | | \* | | | \* | |  |
| CC 52 | \* | | \* | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | |  |
| CC 53 | \* | | \* | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | | \* | | |  | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | |  |
| CC 54 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | | |  | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | \* |
| CC 55 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | | \* | | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | | \* | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | |  |
| CC 56 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | | |  | | |  | | | \* | | |  | | | \* | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | \* |
| CC 57 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | | \* | | | \* | | | | \* | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | |  |
| CC 58 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | | \* | | | \* | | | |  | | |  | | | \* | | |  | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | |  |
| CC 59 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | |  |
| CC 60 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | | \* | | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | \* |
| CC 61 | \* | |  | |  | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | | \* | | |  | | | \* | | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | |  |
| CC 62 | \* | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | | \* | | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | |  |
|  | **PLO 1** | | **PLO 2** | | **PLO 3** | | **PLO 4** | | **PLO 5** | | | **PLO 6** | | | **PLO 7** | | | **PLO 8** | | | **PLO 9** | | | **PLO 10** | | | **PLO 11** | | | **PLO 12** | | | **PLO 13** | | | | **PLO 14** | | | **PLO 15** | | | **PLO 16** | | | **PLO 17** | | | **PLO 18** | | | **PLO 19** | | | **PLO 20** | | | **PLO 21** | | | **PLO 22** | | | **PLO 23** | | | **PLO 24** | | | **PLO 25** | | | **PLO 26** | | | **PLO 27** | | **PLO 28** | | **PLO 29** |
| EC 1.1 |  | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | | \* | |  | |  |
| EC 1.2 |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 1.3 |  | |  | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | \* | |  |
| EC 1.4 |  | |  | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | |  | |  |
| EC 1.5 |  | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | |  | |  |
| EC 1.6 |  | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | | \* | |  | |  |
| EC 1.7 |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | |  | |  |
| EC 1.8 |  | |  | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | | \* | |  | |  |
| EC 1.9 |  | |  | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | |  | |  |
| EC 1.10 |  | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | |  | |  |
| EC 1.11 |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  |
| EC 1.12 |  | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | \* | |  |
| EC 1.13 | \* | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | | \* | | |  | | |  | | \* | |  |
| EC 1.14 |  | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | | \* | |  | |  |
| EC 2.1 | \* | |  | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | \* | |  |
| EC 2.2 |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 2.3 |  | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | |  | |  |
| EC 2.4 | \* | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | \* | |  |
| EC 2.5 |  | |  | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | |  | |  | |  |
| EC 2.6 |  | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | \* | |  |
| EC 2.7 |  | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | |  | |  |
| EC 2.8 | \* | |  | |  | |  | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | | \* | |  | |  |
| EC 2.9 |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | |  | |  |
| EC 2.10 | \* | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | \* | |  |
| EC 2.11 |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | |  | |  |
| EC 2.12 |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 2.13 |  | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | |  | |  |
| EC 2.14 | \* | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | \* | |  |
| EC 2.15 |  | |  | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | |  | |  | |  |
| EC 3.1 |  | |  | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 3.2 | \* | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | | \* | |  | | \* |
| EC 3.3 |  | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | |  | |  |
| EC 3.4 |  | | \* | | \* | | \* | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | | \* |
| EC 3.5 |  | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | |  | | \* |
| EC 3.6 |  | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 3.7 |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 3.8 | \* | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | |  | |  |
| EC 3.9 | \* | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 3.10 |  | | \* | |  | | \* | | \* | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | |  | |  |
| EC 3.11 | \* | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | | \* | |  | | \* |
| EC 3.12 |  | | \* | | \* | |  | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | | \* | | | \* | | |  | | | \* | | | \* | | |  | |  | | \* |
| EC 3.13 |  | | \* | | \* | |  | | \* | | |  | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | | | \* | | | \* | | |  | |  | |  |
| EC 3.14 |  | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | |  | |  | |  |
| EC 3.15 |  | | \* | |  | |  | | \* | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |  |
| EC 3.16 | \* | | \* | |  | | \* | | \* | | |  | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | | | \* | | | \* | | |  | | | \* | |  | |  |
| EC 3.17 |  | |  | |  | |  | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | |  | |  |
| EC 3.18 |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | |  | |  |
| EC 3.19 |  | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 3.20 |  | | \* | |  | | \* | | \* | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | |  | |  |
| EC 3.21 | \* | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | | \* | |  | | \* |
| EC 4.1 |  | | \* | |  | | \* | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 4.2 | \* | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 4.3 | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | |  | |  |
| EC 4.4 |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | |  | |  | |  |
| EC 4.5 | \* | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 4.6 |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | |  | |  |
| EC 4.7 |  | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 4.8 |  | | \* | | \* | |  | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | |  | |  |
| EC 4.9 |  | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | |  | |  | |  |
| EC 4.10 |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 4.11 |  | |  | |  | | \* | |  | | |  | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  |
| EC 4.12 |  | | \* | | \* | | \* | | \* | | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | |  | | |  | | | \* | | |  | | | \* | | | \* | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | |  | |  | |  |
| EC 4.13 |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | | \* | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 4.14 |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | | |  | | |  | |  | |  |
| EC 4.15 |  | | \* | | \* | | \* | | \* | | | \* | | |  | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | |  | | |  | | | \* | | |  | | | \* | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | |  | | \* |
| EC 4.16 |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | | \* | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
| EC 4.17 |  | |  | |  | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | |  | | \* |
| EC 4.18 |  | | \* | | \* | |  | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | |  | |  |
| EC 4.19 |  | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | |  | |  | |  |
| EC 4.20 |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  |
|  | | **PLO 1** | | **PLO 2** | | **PLO 3** | | **PLO 4** | | **PLO 5** | | | **PLO 6** | | | **PLO 7** | | | **PLO 8** | | | **PLO 9** | | | **PLO 10** | | | **PLO 11** | | | **PLO 12** | | | **PLO 13** | | **PLO 14** | | **PLO 15** | | | **PLO 16** | | | **PLO 17** | | | **PLO 18** | | | **PLO 19** | | | **PLO 20** | | | **PLO 21** | | | **PLO 22** | | | **PLO 23** | | | **PLO 24** | | | **PLO 25** | | | **PLO 26** | | | **PLO 27** | | | **PLO 28** | | **PLO 29** | |
| EC 5.1 | |  | |  | |  | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | \* | |
| EC 5.2 | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | | \* | |  | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 5.3 | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | |  | |
| EC 5.4 | | \* | | \* | | \* | | \* | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 5.5 | | \* | |  | | \* | | \* | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 5.6 | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 5.7 | | \* | |  | |  | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 5.8 | | \* | | \* | | \* | | \* | | \* | | | \* | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | | \* | | |  | |  | |
| EC 5.9 | | \* | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 5.10 | |  | | \* | | \* | | \* | | \* | | |  | | | \* | | | \* | | |  | | | \* | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | \* | |
| EC 5.11 | |  | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 5.12 | | \* | | \* | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | \* | | \* | | |  | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 5.13 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | | | \* | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | | \* | | | \* | | | \* | | |  | | | \* | | \* | |
| EC 5.14 | |  | |  | |  | | \* | |  | | |  | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | |  | |
| EC5.15 | |  | |  | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 5.16 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 5.17 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | | \* | |  | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | |  | |
| EC 5.18 | |  | |  | | \* | |  | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 5.19 | |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | |  | | | \* | |  | |
| EC 5.20 | | \* | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 5.21 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 5.22 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | | \* | |  | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | |  | |
| EC 5.23 | |  | |  | | \* | |  | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 5.24 | |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | |  | | | \* | |  | |
| EC 5.25 | | \* | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 6.1 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 6.2 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | | \* | | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 6.3 | |  | |  | | \* | | \* | |  | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 6.4 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | | | \* | | |  | | |  | | | \* | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 6.5 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | |  | |
| EC 6.6 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | | | \* | | |  | | |  | | | \* | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 6.7 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | | \* | |  | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | |  | | | \* | | | \* | | |  | | |  | | |  | |  | |
| EC 6.8 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | | \* | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |
| EC 6.9 | |  | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 6.10 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | |  | |
| EC 6.11 | |  | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 6.12 | |  | |  | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 6.13 | |  | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | |  | |
| EC 6.14 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 6.15 | |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 6.16 | |  | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 6.17 | |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 6.18 | |  | | \* | | \* | |  | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 6.19 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | | | \* | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | | \* | | | \* | | | \* | | | \* | | |  | |  | |
| EC 6.20 | |  | | \* | | \* | |  | | \* | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 6.21 | |  | | \* | | \* | | \* | | \* | | |  | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 6.22 | |  | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | |  | |
| EC 6.23 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 6.24 | |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 6.25 | |  | | \* | | \* | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 6.26 | |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| EC 6.27 | |  | | \* | | \* | |  | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| EC 6.28 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | |  | |  | | | \* | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | | \* | | | \* | | | \* | | | \* | | |  | |  | |
| EC 6.29 | |  | | \* | | \* | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| Elective Specialization 6.1: Obstetrics and Gynaecology | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES 6.1.1 | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | \* | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | |  | |
| ES 6.1.2 | | \* | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| ES 6.1.3 | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | \* | |  | | |  | | | \* | | | \* | | |  | | |  | | | \* | | |  | | | \* | | |  | | |  | | |  | | | \* | | | \* | |  | |
| ES 6.1.4 | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | |  | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | | \* | | |  | | |  | | |  | | | \* | | | \* | |  | |
| ES 6.1.5 | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | | \* | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | | |  | | |  | | | \* | |  | |
| ES 6.1.6 | | \* | | \* | | \* | | \* | | \* | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | | \* | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | |  | |
| Elective Specialization 6.2: Internal Medicine | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES 6.2.1 | | \* | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| ES 6.2.2 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | |  | |
| ES 6.2.3 | | \* | | \* | | \* | | \* | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | \* | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | |  | | | \* | | | \* | | |  | | | \* | | | \* | |  | |
| ES 6.2.4 | |  | | \* | | \* | | \* | | \* | | | \* | | | \* | | |  | | | \* | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | |  | |
| ES 6.2.5 | | \* | | \* | | \* | | \* | | \* | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | | \* | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | |  | |
| Elective Specialization 6.3: General Practice - Family Medicine | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES 6.3.1 | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | | \* | |  | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | \* | |
| ES 6.3.2 | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | | \* | |  | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | \* | |
| ES 6.3.3 | | \* | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| ES 6.3.4 | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | | \* | |  | |  | | | \* | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | \* | |
| ES 6.3.5 | | \* | | \* | | \* | | \* | | \* | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | | \* | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | |  | |
| Elective Specialization 6.4: Surgery | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| ES 6.4.1 | | \* | |  | |  | |  | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |
| ES 6.4.2 | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | \* | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | |  | |
| ES 6.4.3 | | \* | | \* | | \* | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | |  | | |  | | |  | | \* | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | | \* | | \* | |
| ES 6.4.4 | | \* | | \* | | \* | | \* | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | | | \* | | |  | |  | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | |  | |
| ES 6.4.5 | | \* | | \* | | \* | | \* | |  | | |  | | | \* | | | \* | | | \* | | |  | | |  | | | \* | | |  | |  | |  | | |  | | |  | | |  | | |  | | | \* | | |  | | |  | | |  | | | \* | | | \* | | |  | | |  | | |  | |  | |
| ES 6.4.6 | | \* | | \* | | \* | | \* | | \* | | |  | | | \* | | |  | | |  | | |  | | |  | | |  | | |  | |  | |  | | | \* | | | \* | | |  | | |  | | |  | | | \* | | |  | | |  | | | \* | | | \* | | | \* | | | \* | | | \* | |  | |

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|  | **Requirements for the system of internal assurance of higher education quality** (defined in accordance with Standards and Guidelines for Quality Assurance in the European Higher Education Area (ESG) and Article 16 of the Law of Ukraine “On Higher Education”) | |
| 1 | *Principles and procedures for education quality assurance* | They are defined and legitimized in the following documents: Law of Ukraine “On Higher Education” dated July 1, 2014. № 1556-VIІ, “Standards and Guidelines for Quality Assurance in the European Higher Education Area” of the European Association for Quality Assurance in Higher Education, national standard of Ukraine “Quality Management Systems” DSTU ISO 9001:2015.  Principles of education quality assurance:   * compliance with European and national quality standards of higher education; * the autonomy of the higher educational institution, which is responsible for ensuring the quality of educational activities and the quality of higher education; * implementation of quality monitoring; * a systematic approach that involves quality management at all stages of the educational process; * constant improvement of the quality of the educational process; * openness of information at all stages of quality assurance.   Procedures for education quality assurance:   * providing a research and educational environment; * improvement of the planning of educational activities: monitoring and periodic updating of the training program; * high-quality selection of applicants for higher education at the Master’s level; * quality selection of teaching staff; * improvement of the material, technical, scientific and methodological bases for the implementation of the training program; * providing the necessary resources for financing the training of the Master’s degree students; * development of information systems in order to increase the efficiency of management of the educational process; * ensuring the publicity of information about the activities of universities; * creation of an effective system of prevention and detection of academic plagiarism in scientific and methodological papers by university employees and Master’s degree students; * creation of an effective system for preventing corruption and bribery in the educational process of universities. |
| 2 | *Monitoring and periodic review of the training program* | The educational process at the Master’s level is carried out in accordance with the standard of higher education and the training program developed on its basis.  Monitoring and periodic review of the training program is carried out in accordance with the regulations developed by the university.  The criteria by which the educational program is reviewed are defined both as a result of feedback from research and academic staff, students, employers and other stakeholders, and as a result of foreseeing the development of the field, the needs of society and the labour market.  Modernity indicators of the training program include:   * updateability in accordance with the current state of health care; * participation of employers in the development and introduction of changes in the training program; * positive feedback from reviewers on the training program; * sufficient level of satisfaction of students with the content of the training program; * positive feedback from employers about the level of training of graduates. |
| 3 | *Prevention and detection of academic plagiarism* | * building of the team within the higher education institutions that does not accept and does not allow academic dishonesty; * creation of intolerance conditions for cases of academic plagiarism; * creation of expert commissions to detect academic plagiarism in scientific articles, monographs, textbooks, educational and methodological publications, dissertations, etc.; * identification and prosecution of those guilty of academic plagiarism. |

**List 1 (syndromes and symptoms)**

1. asphyxia (including perinatal)

2. cold injury, including in field conditions

3. thermal injury, including in field conditions

4. hypertensive crisis

5. hypoglycaemia (coma)

6. acute respiratory failure, including tension pneumothorax

7. acute urinary retention

8. acute bleeding

9. acute adrenal insufficiency

10. acute liver failure

11. acute heart failure, including pulmonary oedema

12. acute cerebral insufficiency. Acute cerebral stroke. Transient ischemic attack

13. acute poisoning, including combat poisonous substances

14. acute kidney damage

15. bites of snakes, insects, animals

16. sharp pain

17. acute coronary syndrome

18. acute obstructive syndrome

19. acute psychosis

20. acute allergic reactions, including anaphylaxis

21. acute radiation and chemical damage, including in field conditions and emergency situations

22. diabetic coma, including ketoacidic, hyperosmic, lactacidemic

23. electric injury

24. status epilepticus

25. biliary colic

26. collapse, syncope

27. crash syndrome

28. critical rhythm disturbances, including tachy- and bradyarrhythmia

29. renal colic

30. normal childbirth

31. frostbite

32. burns, including in field conditions

33. burn injury

34. impaired consciousness and coma

35. preeclampsia. Eclampsia.

36. penetrating wounds, including during hostilities

37. sudden cardiac arrest in children and adults

38. foreign bodies of the respiratory tract, gastrointestinal tract, ENT organs and the eye

39. strangulation asphyxia

40. convulsive syndrome

41. chest injuries

42. abdominal injuries

43. injuries of the musculoskeletal system

44. venous and arterial thromboembolism

45. drowning

46. craniocerebral injury

47. shocks

**List 2 (diseases)**

**І) Diseases of the blood and hematopoietic organs, disorders involving the immune mechanism:**

1. anaemia

2. haemolytic disease of new-borns

3. haemophilia

4. idiopathic thrombocytopenic purpura

5. leukaemia

6. lymphomas

7. congenital (Bruton's disease, Wiskott-Aldrich syndrome) and acquired immunodeficiency conditions

8. sepsis of new-borns

9. surgical sepsis

10. chronic radiation damage

**II) Mental and behavioural disorders:**

11. bipolar affective disorder

12. acute psychosis, including alcoholic delirium

13. epilepsy

14. neurotic disorders

15. personality disorders

16. schizophrenia

**III) Diseases of the nervous system:**

17. vertebrogenic disorders of the nervous system, neuropathy and polyneuropathy

18. vibration disease

19. meningitis, encephalitis

20. migraine and other types of headache

21. perinatal encephalopathy

22. autonomic nervous system disturbances

23. cerebral circulation disturbances

24. multiple sclerosis

25. craniocerebral injury

*Eye diseases*

26. blepharitis

27. acute glaucoma attack

28. conjunctivitis

29. retinopathy

30. foreign body of the eye

31. eye injuries

*Diseases of the throat, ears, nose*

32. laryngitis

33. otitis

34. peritonsillar abscess

35. sinusitis

36. tonsillitis

**IV) Diseases of the cardiovascular system:**

37. aortic aneurysms

38. atherosclerosis

39. varicose veins of the lower extremities

40. congenital heart defects

41. acute occlusion of main and peripheral arteries;

42. endocarditis

43. essential and secondary arterial hypertension

44. ischemic heart disease

45. carditis (myocarditis, endocarditis, pericarditis)

46. cardiomyopathy

47. pulmonary heart disease

48. acquired heart defects

49. obliterating endarteritis

50. heart rhythm and conduction disturbances

51. heart failure

52. injuries of the heart and blood vessels

53. pulmonary embolism

54. phlebitis, thrombophlebitis

**V) Diseases of respiratory organs and mediastinum:**

55. asphyxia

56. bronchial asthma

57. bronchitis

58. bronchiectasis

59. bronchopulmonary dysplasia

60. congenital malformations of respiratory organs

61. respiratory failure

62. infectious and destructive lung diseases

63. pulmonary insufficiency

64. mediastinitis

65. cystic fibrosis

66. neoplasms of lungs and mediastinum

67. pleurisy

68. pneumoconiosis

69. pneumonia

70. pneumothorax

71. respiratory distress syndrome and pneumonia of new-borns

72. foreign body in the respiratory tract

73. chest injuries

74. chronic obstructive pulmonary disease

**VI) Diseases of the digestive organs:**

75. congenital malformations of digestive organs

76. gastroesophageal reflux disease

77. gastritis

78. hemorrhoidal disease

79. acute intestinal obstruction

80. acute and chronic appendicitis

81. acute and chronic pancreatitis

82. acute and chronic hepatitis

83. duodenitis

84. esophagitis

85. enteritis

86. gallstone disease, choledocholithiasis

87. inflammatory diseases of the rectum and perianal region

88. constricted and nonincarcerated abdominal hernias

89. colitis

90. neoplasms of digestive organs

91. peptic ulcers of the stomach and duodenum

92. peritonitis

93. perforation of a hollow organ

94. liver failure

95. malabsorption in the intestines (malabsorption syndrome)

96. stenosis of the pylorus of the stomach

97. abdominal injuries

98. functional gastrointestinal disorders

99. diseases of the operated stomach

100. cholecystitis, cholangitis

101. liver cirrhosis

**VII) Diseases of the genitourinary system:**

102. amyloidosis of the kidneys

103. balanitis, balanoposthitis

104. congenital malformations of the urinary system

105. glomerulonephritis

106. dysmetabolic nephropathy

107. nephrotic syndrome

108. neoplasms of the kidney, urinary tract and prostate gland

109. pyelonephritis

110. prostatitis

111. urolithiasis

112. tubulointerstitial nephritis

113. urethritis

114. chronic kidney disease

115. cystitis

**VIII) Diseases of the skin and subcutaneous tissue:**

116. allergic dermatoses (urticaria, dermatitis, toxidermia, eczema)

117. fungal skin diseases

118. candidiasis of the skin and mucous membranes

119. papulosquamous dermatoses (psoriasis, lichen planus)

120. parasitic skin diseases (scabies, head lice)

121. pyoderma (superficial and deep; streptococcal, staphylococcal and mixed)

122. bullous dermatoses (blistering dermatitis, dermatitis herpetiformis)

123. Kaposi's sarcoma

124. sexually transmitted diseases (syphilis: early, late and congenital)

**IX) Diseases of the musculoskeletal system and connective tissue:**

125. ankylosing spondyloarthritis

126. congenital and acquired malformations of the musculoskeletal system

127. acute rheumatic fever

128. dermatomyositis

129. neoplasm of the musculoskeletal system

130. osteoarthritis

131. osteomyelitis

132. gout

133. polymyositis

134. polytrauma

135. reactive arthritis

136. rheumatoid arthritis

137. syndrome of benign hypermobility

138. systemic scleroderma

139. systemic lupus erythematosus

140. systemic vasculitis

141. typical fractures of the bones of the shoulder, forearm, hand, hip, leg, foot

142. pelvis injury

143. spine injury

144. damage to large joints (hip, knee, ankle-foot, elbow)

145. chronic rheumatic heart disease

146. juvenile idiopathic (rheumatoid) arthritis

**X) Diseases of the endocrine system, nutritional disorders and metabolic disorders:**

147. acromegaly

148. protein-energy deficiency

149. hypothyroidism

150. pituitary dwarfism

151. diffuse toxic goitre

152. iodine deficiency diseases of the thyroid gland

153. diabetes insipidus

154. neoplasm of the thyroid gland

155. obesity

156. congenital dysfunction of the adrenal cortex

157. rickets

158. hereditary diseases of metabolism

159. spasmophilia

160. persistent hyperplasia of the thymus gland

161. thyroiditis

162. thyrotoxicosis

163. Itsenko-Cushing’s disease and syndrome

164. chromosomal diseases

165. chronic adrenal insufficiency

166. diabetes mellitus

**XI) Infectious and parasitic diseases:**

167. alveococcosis

168. amebiasis

169. bacterial food poisoning

170. rabies

171. botulism

172. brucellosis

173. HIV infection

174. viral hepatitis

175. chicken pox (chicken pox)

176. congenital infections of the new-born

177. helminth infections

178. haemorrhagic fevers

179. flu and other acute respiratory viral infections

180. diphtheria

181. epidemic parotitis

182. erysipeloid

183. yellow fever

184. infectious mononucleosis

185. candidiasis

186. whooping cough

187. intestinal bacterial infections

188. intestinal viral infections

189. measles

190. tick-borne viral encephalitis

191. coronavirus infections

192. rubella

193. legionellosis

194. leishmaniasis

195. leptospirosis

196. giardiasis

197. malaria

198. meningococcal infection

199. herpes zoster

200. ornithosis

201. poliomyelitis

202. tetanus

203. herpes simplex

204. protozoan infections

205. rickettsioses

206. anthrax

207. systemic tick-borne borreliosis

208. rabies

209. scarlet fever

210. toxoplasmosis

211. tuberculosis

212. tularaemia

213. felinosis

214. chlamydial infections

215. cholera

216. cytomegalovirus infection

217. typhoid and paratyphoid

218. plague

**- infectious diseases transmitted mainly sexually:**

219. gonococcal infection

220. syphilis

***XII) Diseases of the female reproductive system***

*pathologies of pregnancy:*

221. multiple pregnancy

222. gestational hypertension

223. gestational proteinuria

224. gestational oedema

225. foetal distress during pregnancy

226. eclampsia

227. foetal growth retardation

228. cyst drift

229. placenta previa

230. premature detachment of the placenta

231. postponed pregnancy

232. ectopic pregnancy

233. preeclampsia

234. spontaneous abortion

*pathology of childbirth and the postpartum period:*

235. anomalies of labour activity

236. abnormalities of the pelvis, including clinically narrow pelvis

237. foetal distress during childbirth

238. late childbirth

239. childbirth bleeding

240. incorrect foetus positions and presentation

241. premature birth

242. postpartum septic diseases

243. injuries of the uterus and birth canal

*gynaecological diseases:*

244. abnormal uterine bleeding

245. ovarian apoplexy

246. infertility

247. congenital malformations of female genital organs

248. dysmenorrhea

249. endometriosis

250. inflammatory diseases of female genital organs

251. mastitis

252. neoplasms of female genital organs

253. neoplasm of mammary glands

**List 3 (emergency conditions):**

1.influence of environmental factors. Hypothermia and hyperthermia

2. hypertensive crises

3. hypoglycaemic and hyperglycaemic comas

4. acute poisoning and animal bites

5. sharp pain

6. acute coronary syndrome

7. acute cerebral stroke. Transient ischemic attack

8. acute obstructive syndrome

9. acute psychosis

10. acute allergic reactions, including Anaphylaxis

11. cardiogenic shock

12. collapse, syncope

13. crash syndrome

14. critical rhythm disturbances, including tachy- and bradyarrhythmia

15. mechanical asphyxia

16. pulmonary oedema

17. tension pneumothorax

18. frostbite

19. burn injury

20. preeclampsia. Eclampsia.

21. sudden stoppage of blood circulation in children and adults

22. septic shock

23. acute blood loss syndrome, including external, internal bleeding and massive obstetric bleeding

24. severe hypohydration syndrome

25. convulsive syndrome

26. chest injuries

27. abdominal injuries

28. musculoskeletal system traumas

29. physiological and complicated childbirth

30. craniocerebral injury

**List 4 (laboratory and instrumental studies)**

**laboratory studies:**

1. faecal elastase activity

2. amplification methods for infectious diseases (PCR, LСR)

3. analysis of ascitic fluid

4. analysis of the content of acetone, creatinine and urea in urine

5. pleural fluid analysis

6. analysis of synovial fluid

7. Zimnitsky urine test

8. Nechiporenko urine test

9. glomerular filtration rate analysis

10. bacteriological examination of biological fluids and secretions

11. biochemical blood analysis:

- alpha-amylase activity

- blood aminotransferases

- glycosylated haemoglobin

- blood glucose

- blood electrolytes

- total blood bilirubin and its fractions

- creatinine, blood urea

- lactate

- blood lipids and lipoproteins and their fractions

- blood alkaline phosphatase

- procalcitonin

- blood proteins and their fractions

- blood uric acid

- C-reactive protein

- C-peptide

- serum ferritin, iron and copper

12. determination of alpha-amylase activity in urine

13. determination of vitamin content in blood

14. determination of hormones content in the blood

15. determination of blood group and Rhesus factor

16. determination of calprotectin content in blood and faeces

17. histomorphological examination of tissues and organs

18. rapid tests for viral diseases

19. general analysis of faeces

20. general blood test

21. general analysis of urine

22. general analysis of cerebrospinal fluid

23. general analysis of sternal puncture

24. general analysis of sputum

25. general immunological blood profile

26. coagulogram

27. methods of allergy diagnosis

28. oral glucose tolerance test

29. sweat pilocarpine test

30. serological reactions in autoimmune diseases

31. serological reactions in infectious diseases

32. serological tests for hereditary pathology

33. tuberculin diagnostics

34. cytological examination of the cervix

**instrumental studies:**

35. audiometry (tonal threshold and suprathreshold, speech)

36. multi-moment fractional study of bile and pH-metry of the stomach and oesophagus

37. daily blood pressure measurement

38. study of the ventilation function of the auditory tube

39. study of external breathing function

40. electroencephalography

41. endoscopic examination of bronchi

42. endoscopic examination of the digestive tract

43. echocardiography and Doppler ultrasonography

44. methods of instrumental breasts visualization

45. research methods for congenital and hereditary pathology (karyotyping, cytogenetic methods)

46. ​​methods of instrumental visualization of organs of the thorax

47. methods of instrumental visualization of organs of the abdominal cavity

48. methods of instrumental visualization of the genitourinary system

49. methods of instrumental visualization of the thyroid gland

50. methods of instrumental visualization of the skull, spine, spinal cord, bones and joints

51. exercise testing (cycle ergometry, treadmill test)

52. pulse oximetry

53. contrast X-ray angiography

54. standard ECG (in 12 leads)

55. Holter ECG monitoring

**other research methods:**

56. measurement of radiation (sound, vibration, ionizing), individual radiometry

57. measurement of ergonomic indicators of work difficulty and intensity

58. study of the internal environment of premises (indicators of microclimate, natural and artificial lighting, bacteriological and chemical air pollution)

59. chemical, organoleptic, bacteriological study of food products and drinking water

60. chemical and bacteriological studies of the human environment (atmospheric air, water, soil)

**List 5 (medical manipulations):**

1. to determine blood groups, rhesus factor

2. to perform chest compressions (indirect cardiac massage)

3. to perform a pleural puncture

4. to perform a puncture of the abdominal cavity through the posterior arch

5. to perform the technique of “skin-to-skin” contact of the new-born and early breastfeeding attachment

6. to perform artificial lung ventilation: mouth-to-mouth (through a barrier device), with an Ambu bag

7. to measure blood pressure

8. to restore the patency of the respiratory tract: conicopuncture

9. to restore airway patency: manually; using ducts; with the use of specialized supralaryngeal devices (laryngeal mask/tube)

10. to install a nasogastric and orogastric tube

11. to provide peripheral venous access

12. to blood sampling for tests

13. to perform auscultation of the foetus

14. to carry out external (Leopold techniques) and internal obstetric examination

15. to carry out a clinical examination of the mammary glands

16. to carry out a clinical examination of the eye and ENT organs)

17. to evaluate the child’s physical development

18. to carry out a digital examination of the prostate

19. to carry out a digital examination of the rectum and with the help of a rectal mirror

20. to carry out primary surgical treatment of the wound, dressing, removal of skin sutures, including in field conditions

21. to temporarily stop external bleeding: using a tourniquet, by tamponing the wound, including in field conditions

22. to apply bandages, including in field conditions

23. to assess the state of sexual development of a child

24. to transfer the patient to a stable lateral position

25. to transfuse blood components and blood substitutes

26. to take physiological childbirth

27. to conduct audiometry (tonal threshold, suprathreshold, speech)

28. to perform auscultation of internal organs

29. to carry out basic and advanced resuscitation measures

30. to conduct a bimanual examination and speculum examination of a woman

31. to administer drugs (inhalation, subcutaneous, intramuscular, intravenous jet and drip, intraosseous), including in field conditions

32. to determine the intraocular pressure

33. to measure the anthropometric body parameters of persons of different age groups

34. to perform glucometry (using a glucometer)

35. to perform defibrillation: using manual and automatic defibrillators

36. to conduct a study of the ventilation function of the auditory tube

37. to take swabs for bacterioscopic, bacteriological, cytological examination

38. to conduct external electrical cardiostimulation

39. to conduct cardiac monitoring

40. to perform bladder catheterization with a soft probe

41. to carry out exercise testing (cycle ergometry, treadmill test)

42. to provide assistance in case of airway obstruction by a foreign body/indentation (including Heimlich manoeuvre)

43. to carry out processing of the operating field

44. to conduct an examination using the FAST test

45. to conduct an examination and evaluation of the external genitalia of boys

46. to carry out oxygen therapy

47. to assess the level of consciousness according to the AVPU scale and the Glasgow coma scale

48. to conduct palpation of internal organs

49. to palpate the thyroid gland

50. to perform pelvimetry

51. to conduct an initial examination of an uninjured patient according to the ABCDE system

52. to conduct an initial examination of the injured patient according to the CABCDE system

53. to perform anterior nasal tamponade

54. to perform percussion of internal organs

55. to conduct electroencephalography registration

56. to register a standard 12-lead ECG

57. to perform synchronized cardioversion

58. to carry out thermometry (using contact and non-contact thermometers)

59. to carry out transport immobilization

60. to conduct Holter ECG monitoring

**Program Guarantor, Head of the Project Group:**

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