**COURSE OUTLINE**

1. **GENERAL**

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| **SCHOOL** | School of Health Sciences |
| **ACADEMIC UNIT** | Faculty of Medicine |
| **LEVEL OF STUDIES** | Undergraduate |
| **COURSE CODE** | **ΙΑΕΑ13** | **SEMESTER** | **10th**  |
| **COURSE TITLE** | **ADVANCES IN INTENSIVE CARE** |
| **INDEPENDENT TEACHING ACTIVITIES** *if credits are awarded for separate components of the course, e.g. lectures, laboratory exercises, etc. If the credits are awarded for the whole of the course, give the weekly teaching hours and the total credits* | **WEEKLY TEACHING HOURS** | **CREDITS** |
| Academic lectures / Clinical practice in Intensive Care Medicine | 4 h/week x 13 weeks = 52 h | 2 |
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| *Add rows if necessary. The organisation of teaching and the teaching methods used are described in detail at (4).* |  |  |
| **COURSE TYPE***general background, special background, specialised general knowledge, skills development* | Specialised general knowledge and skills development |
| **PREREQUISITE COURSES:** | Pathophysiology, Nosology |
| **LANGUAGE OF INSTRUCTION and EXAMINATIONS:** | Greek |
| **IS THE COURSE OFFERED TO ERASMUS STUDENTS** | NO |
| **COURSE WEBSITE (URL)** | <https://ecourse.uoi.gr/enrol/index.php?id=1623>  |

1. **LEARNING OUTCOMES**

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| **Learning outcomes** |
| *The course learning outcomes, specific knowledge, skills and competences of an appropriate level, which the students will acquire with the successful completion of the course are described.**Consult Appendix A* * *Description of the level of learning outcomes for each qualifications cycle, according to the Qualifications Framework of the European Higher Education Area*
* *Descriptors for Levels 6, 7 & 8 of the European Qualifications Framework for Lifelong Learning and Appendix B*
* *Guidelines for writing Learning Outcomes*
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| This course supplements the required course of Intensive Care and deepens more on the same topics.* In academic lectures importance will be given in understanding ICU admission criteria, diagnosis and management of patients with acute respiratory failure, shock, severe infection, traumatic brain injury, coma, stroke, severe trauma, and the management of patients with brain death, together with ethical dilemmas that arise during treatment of patients with irreversible diseases.
* Clinical practice follows academic lectures and aims at acquiring skills, such as non-invasive ventilation application, arterial blood gases sampling, together with better understanding of mechanical ventilation and hemodynamic monitoring.

Upon successful completion of academic lectures, students will be able to:* Identify critically ill patient as well as ICU admission criteria.
* Identify the patient with acute respiratory failure, proceed to proper clinical and laboratory testing required for diagnosis of the underlying cause and perform a differential diagnosis procedure. Also he/she will be able to recommend an initial treatment for acute hypercapnic and hypoxic respiratory failure.
* Know indications for intubation, the general principles of mechanical ventilation and basic indications for non-invasive mechanical ventilation.
* Identify the patient with shock, evaluate hemodynamic monitoring findings, proceed to proper clinical and laboratory tests helping differential diagnosis, and recommend initial therapeutic approaches according to shock’s type.
* Recognize sepsis, classify sepsis severity and apply international guidelines for initial management of septic patients.
* Manage the patient with severe traumatic brain injury, both in Emergency Department and in ICU, recognize indications of intubation, know basics of drug-incused sedation and understand the general principles of diagnosis and medical and surgical interventions for treating patients with brain oedema and focal brain lesions.
* Know the ICU admission criteria for patients with severe stroke, evaluate their prognosis, understand the general therapeutic interventions applied for reducing cerebral oedema together with basic principles of intracranial pressure monitoring; also understand the indications for specific therapeutic interventions such as thrombolysis (ischemic stroke) or surgical interventions such as decompressive craniectomy.
* Evaluate the trauma patient after his ICU admission, proceed to proper clinical and laboratory test necessary for diagnosis of chest-, great vessels-, abdominal-, or traumatic brain-injuries, recognize and treat disseminated intravascular coagulation.
* Recognize brain death, and deal with ethical and legal dilemmas arising during organ donation process.
* Recognize the ethical and legal issues arising during the end of life of a critically ill patient, understand accepted international guidelines for treatment withdrawal in the setting of a critically ill patient.

Upon successful completion of clinical practice, students will be able to:* Know indications for mask ventilation and intubation together with necessary equipment and drugs and understand relevant complications.
* Know the basic principles for mechanical ventilation (resistance, compliance), main modes of mechanical ventilation, and special needs of patients with ARDS, asthma and chronic obstructive pulmonary disease; be familiar with monitoring of mechanical ventilation (pressure flow waveforms) and ventilator’s alarms; understand the indications for the prone positioning of ARDS patients; know indications and contraindications together with general principles of non-invasive mechanical ventilation.
* Understand basic hemodynamic monitoring (blood pressure, central venous pressure), together with more advanced techniques such as pulmonary artery catheterization (pulmonary pressure, wedge pressure, cardiac output, SVO2) and special hemodynamic monitoring (Vigileo; SVV, PVV).
* Use lung ultrasound to recognize pleural effusions, lung atelectasis, and pneumothorax; use ultrasound to assess myocardial contractility and inferior vena cava variation; use ultrasound to detect large veins (subclavian, internal jugular, femoral) for central line placement.
* (In a simple chest X-ray) identify key anatomical structures; recognize central line catheters, nasogastric tube, endotracheal tube; recognize usual pathological conditions such as atelectasis, and pneumothorax. (In a CT scan) recognize basic types of traumatic brain injury such as subdural and epidural hematoma, contusions, subarachnoid haemorrhage, diffuse and focal cerebral oedema; recognize pathological chest and abdominal conditions (e.g. pancreatitis, ascites, etc.).
* Make differential diagnosis of coma; know the basic principles of conservative and surgical treatment of coma, subarachnoid haemorrhage, together with indications and contraindications of thrombolytic therapy of ischemic cerebrovascular episodes; understand intracranial pressure monitoring.
* Know brain death criteria and perform appropriate clinical tests for brain death diagnosis.
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| **General Competences**  |
| *Taking into consideration the general competences that the degree-holder must acquire (as these appear in the Diploma Supplement and appear below), at which of the following does the course aim?* |
| *Search for, analysis and synthesis of data and information, with the use of the necessary technology* *Adapting to new situations* *Decision-making* *Working independently* *Team work**Working in an international environment* *Working in an interdisciplinary environment* *Production of new research ideas*  | *Project planning and management* *Respect for difference and multiculturalism* *Respect for the natural environment* *Showing social, professional and ethical responsibility and sensitivity to gender issues* *Criticism and self-criticism* *Production of free, creative and inductive thinking**……**Others…**…….* |
| * Search for, analysis and synthesis of data and information, with the use of the necessary technology
* Decision-making
* Working independently
* Team work
* Production of free, creative and inductive thinking
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1. **SYLLABUS**

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| * ICU scoring systems
* Basic principles of monitoring of respiratory function
* Hemodynamic monitoring
* Acute respiratory failure (ARF)
* ARDS - Treatment strategies
* Basic principles of mechanical ventilation
* Non-invasive mechanical ventilation (NIMV)
* Echo Lung
* Traumatic brain injury
* Management of the trauma patient in the ICU
* Brain death - Organ donation
* Ethical dilemmas and problems about the patient with irreversible disease
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1. **TEACHING and LEARNING METHODS - EVALUATION**

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| **DELIVERY***Face-to-face, Distance learning, etc.* |  Academic lectures and clinical practice in Intensive Care Medicine, Intensive Care Unit, University Hospital of Ioannina |
| **USE OF INFORMATION AND COMMUNICATIONS TECHNOLOGY** *Use of ICT in teaching, laboratory education, communication with students* | The learning process is supported through the electronic platform http://ecourse.uoi.gr |
| **TEACHING METHODS***The manner and methods of teaching are described in detail.**Lectures, seminars, laboratory practice, fieldwork, study and analysis of bibliography, tutorials, placements, clinical practice, art workshop, interactive teaching, educational visits, project, essay writing, artistic creativity, etc.**The student's study hours for each learning activity are given as well as the hours of non-directed study according to the principles of the ECTS* |

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| ***Activity*** | ***Workload of each students group***  |
| Academic lectures | 26 |
| Lectures - independent study | 6 |
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| Clinical practise - techniques learning | 26 |
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| Course total  | ***58******2 ECTS*** |
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| **STUDENT PERFORMANCE EVALUATION***Description of the evaluation procedure**Language of evaluation, methods of evaluation, summative or conclusive, multiple choice questionnaires, short-answer questions, open-ended questions, problem solving, written work, essay/report, oral examination, public presentation, laboratory work, clinical examination of patient, art interpretation, other**Specifically-defined evaluation criteria are given, and if and where they are accessible to students.* | A. Final written exam for academic lectures, witch include multiple choice questionsB. Final oral exam for clinical practise, on a patient’s condition, on clinical examination, and presentation of a paper from current medical literature. |

1. **ATTACHED BIBLIOGRAPHY**

*Teaching - study material*

**Critical Care Handbook Of The Massachusetts General Hospital**

**Author: Luca M. Bigatello**

**Evdoxos Identification Number: 3571**

**ISBN: 978-960-6894-01-5**

**CHAVALES A - CHATZISYMEON K OE Editions**

- Related scientific journals:

1. Current Opinion in Critical Care

2. Intensive Care Medicine