



# **Hellenic Naval Academy**

## **ENGINEER CADETS SYLLABUS**



Academic Year: 2026 – 2027

| Fall Semester                                         | Hours     | ECTS      | Spring Semester                                                  | Hours     | ECTS      |
|-------------------------------------------------------|-----------|-----------|------------------------------------------------------------------|-----------|-----------|
| <b>1<sup>st</sup> YEAR</b>                            |           |           |                                                                  |           |           |
| SINGLE VARIABLE CALCULUS                              | 4         | 5         | VECTOR ANALYSIS                                                  | 4         | 4         |
| GENERAL & APPLIED PHYSICS - A                         | 4         | 5         | ANALYTIC GEOMETRY                                                | 3         | 3         |
| LINEAR ALGEBRA                                        | 3         | 3         | GENERAL & APPLIED PHYSICS -B                                     | 3         | 3         |
| INTRODUCTION TO COMPUTER SCIENCE                      | 2         | 2         | SOCIAL PSYCHOLOGY                                                | 3         | 3         |
| MECHANICAL DESIGN                                     | 3         | 3         | EARLY MODERN NAVAL HISTORY                                       | 3         | 3         |
| INTRODUCTION TO NAVAL ARCHITECTURE                    | 2         | 2         | FOREIGN LANGUAGES II & IMO                                       | 5         | 6         |
| ANCIENT AND MEDIEVAL NAVAL HISTORY                    | 3         | 3         | COMPUTER PROGRAMMING                                             | 2         | 2         |
| FOREIGN LANGUAGES I                                   | 3         | 3         | FUNDAMENTALS OF NAVIGATION – SEAMANSHIP                          | 5         | 6         |
| PHILOSOPHY                                            | 2         | 2         |                                                                  |           |           |
| GENERAL CHEMISTRY                                     | 2         | 2         |                                                                  | <b>28</b> | <b>30</b> |
| Subtotal                                              | <b>28</b> | <b>30</b> |                                                                  |           |           |
| <b>2<sup>nd</sup> YEAR</b>                            |           |           |                                                                  |           |           |
| DIFFERENTIAL EQUATIONS                                | 3         | 3         | SYSTEM ANALYSIS AND INTRODUCTION TO CONTROL SYSTEMS              | 3         | 3         |
| INTRODUCTION TO ELECTRIC CIRCUITS THEORY              | 3         | 3         | NUMERICAL ANALYSIS                                               | 2         | 2         |
| THERMODYNAMICS                                        | 3         | 4         | MARINE AUXILIARY SYSTEMS AND SHIP PIPE NETWORKS                  | 3         | 3         |
| THEORETICAL AND APPLIED ELECTROMAGNETISM              | 4         | 5         | APPLIED THERMODYNAMICS                                           | 5         | 6         |
| FLUID MECHANICS                                       | 3         | 4         | THEORETICAL MECHANICS - STATICS                                  | 4         | 4         |
| FOREIGN LANGUAGES III                                 | 3         | 3         | ELECTRIC CIRCUITS THEORY & APPLICATIONS                          | 4         | 4         |
| PROBABILITIES                                         | 2         | 2         | MODERN NAVAL HISTORY                                             | 2         | 2         |
| FUELS & LUBRICANTS TECHNOLOGY                         | 3         | 4         | FOREIGN LANGUAGES IV                                             | 2         | 2         |
| COMPUTER ARCHITECTURE                                 | 2         | 2         | STATISTICS                                                       | 2         | 2         |
|                                                       |           |           | DATABASES                                                        | 2         | 2         |
| Subtotal                                              | <b>26</b> | <b>30</b> |                                                                  | <b>29</b> | <b>30</b> |
| <b>3<sup>rd</sup> YEAR</b>                            |           |           |                                                                  |           |           |
| INTRODUCTION TO ELECTRICAL MACHINES                   | 3         | 3         | ELECTRICAL POWER SYSTEMS                                         | 3         | 3         |
| OPERATIONAL RESEARCH – LINEAR PROGRAMMING             | 2         | 2         | SPECIAL TOPICS ON APPLICATIONS OF MODERN PHYSICS                 | 2         | 2         |
| APPLIED MECHANICS I                                   | 2         | 2         | MATERIALS SCIENCE                                                | 3         | 3         |
| ELECTRONICS I                                         | 5         | 6         | APPLIED MECHANICS II                                             | 3         | 3         |
| THEORETICAL MECHANICS - DYNAMICS                      | 4         | 4         | ELECTRONICS II                                                   | 5         | 6         |
| QUANTUM PHYSICS – APPLICATIONS (IR AND LASER)         | 2         | 2         | MATHEMATICAL MODELING AND APPLICATIONS                           | 2         | 2         |
| HEAT TRANSFER                                         | 3         | 3         | MARINE PISTON ENGINES                                            | 5         | 6         |
| MARINE GAS TURBINES                                   | 5         | 6         | FOREIGN LANGUAGES VI                                             | 3         | 3         |
| FOREIGN LANGUAGES V                                   | 2         | 2         | ARTIFICIAL INTELLIGENCE                                          | 2         | 2         |
| Subtotal                                              | <b>28</b> | <b>30</b> |                                                                  | <b>28</b> | <b>30</b> |
| <b>4<sup>th</sup> YEAR</b>                            |           |           |                                                                  |           |           |
| COMPUTER NETWORKS - NETWORK PROGRAMMING               | 3         | 3         | INFORMATION SECURITY - CRYPTOGRAPHY - COMPUTATIONAL INTELLIGENCE | 2         | 2         |
| INTRODUCTION TO FINITE ELEMENTS                       | 3         | 3         | LAW OF THE SEA                                                   | 3         | 3         |
| RISK ANALYSIS AND DECISION MAKING IN DEFENSE AND CSDP | 2         | 2         | APPLIED MECHANICS III                                            | 2         | 2         |
| NAVAL ARCHITECTURE I                                  | 5         | 5         | PRINCIPLES OF LEADERSHIP AND MANAGEMENT                          | 2         | 2         |
| MACHINE ELEMENTS I                                    | 3         | 3         | NAVAL ARCHITECTURE II                                            | 5         | 4         |
| COMMUNICATION SYSTEMS I                               | 5         | 5         | EXPERIMENTAL STRENGTH AND FAILURE OF MATERIALS                   | 4         | 4         |
| NAVAL MATERIALS TECHNOLOGY                            | 3         | 3         | MACHINE ELEMENTS II                                              | 3         | 3         |
| THESIS                                                |           | 6         | COMMUNICATION SYSTEMS II                                         | 5         | 4         |
|                                                       |           |           | THESIS                                                           |           | 6         |
| Subtotal                                              | <b>24</b> | <b>30</b> |                                                                  | <b>26</b> | <b>30</b> |