



Sustainable development of Blue economies through higher education and innovation in Western Balkan Countries – BLUEWBC

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BLUEWBC

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Approved by:	QAB, PMB

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BLUEWBC

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1. Navigational Equipment

SUBJECT PROGRAM: DET223 NAVIGATIONAL EQUIPMENTS

Lecturer/course instructor:
Hours:
Subject typology:
Academic year / Semester:
Type of subject:
Study program:
Subject code:
E-mail address of the lecturer/course instructor:

SUMMARY AND LEARNING OUTCOMES

This course aims to present the main Navigational Equipments used in the ship, their types, the principles of work, technical construction and the purpose of their use in navigation. Also, to provide theoretical knowledge and practical skills needed for business management students in the area of innovation and technology development and management.

BASIC CONCEPTS:

Introduce to the students the basic knowledge and the principles of work, technical construction of all navigational equipment used in ships and especially their use for maintaining the security of the ship.
To provides the students with the basic knowledge related to the use of the Navigational Equipment

SUBJECT TOPICS:

The principles of the Radar Systems. The phenomena reflection of the radio waves. The physical base and the methods of radio-discover.
The Doppler Effect, methods of continuing and impulsive emission. Knowledge about the diffusion of radio waves E/M in the space.
The main abilities of the nautical radar. Radar Block-scheme, its parts.
The distance observation in the free space, the equation of radar, its interpretation. The factors that influence in the distance of measurement of radar. The influence of metrological factor as well as the damp of waves E/ M in the space.
The impulsive radar, the work principle, its construction and its characteristics. Radars with continuing emission C W, block scheme. Doppler Radars.
Antennas used in S.R.LL .electrical antennas parameters, block scheme of antennas, their characteristics.
Repliers Radar Ramark and Beacon. Search and Rescue Transponder, their types and procedures.
ARPA The utilization of radar in the navigation as an anti-crash equipments.
The magnetism of the earth and the ship's deviation. The magnetic compass
The gyro-compass. Compass corrections.
Echo-sounders. Speed logs.
Basic principles of hyperbolic navigation systems. Loran-C system.



Satellite navigation systems – GPS.

In addition:

AIS system.

Integration navigation system.

Generation of innovative ideas. Application of creativity tools in business.

Overview of contemporary innovation processes. Design thinking methodology. Service design.

Practical course work: Generation of the innovation project. Teamwork role in fostering employees' creativity and initiative.

Midterm test.

Submission and Defence of Course Assignments.

Final test.

FORM OF KNOWLEDGE EVALUATION

Student obligations for the subject:

The student must independently perform seminary work:

ATTENDANCE: Obligatory up to 75 %.

THE METHOD OF EVALUATION

Semester progress (MS1+MS2+MS3) = 10%

Intermediate Test = 30 %

Final Test = 60 %

Total = 100 %

BIBLIOGRAPHY

Mandatory basic bibliography:

1-Aparaturat Elektronavigacionale (Gj. Toskaj – Dispens 2010)

2-Radiopropagazione. Accademia Navale Livorno

3-Nocioni Di Tecnica Radar. Rafaele Azzaroni

4- G.P.S. Manual

5- Elektronavigacione 1994

6- Merrifield, F.G. Ship Magnetism and The Magnetic Compass, Pergamon

7-AIS system in Navigation.

8. Advanced integration navigation system.

1. Schilling M., Strategic Management of Technological Innovation (Irwin Management) 5th Edition. McGraw-Hill Education, 2016.

Trott, P. Innovation management and new product development. Harlow : FT/Prentice Hall, 2012.

2. Goffin, K., Mitchell, R. Innovation Management: Effective strategy and implementation 3rd ed. Red Globe Press, 2017.

3. Wonglimpiyarat, J. Innovation financing policies for entrepreneurial development - Cases of Singapore and Taiwan as newly industrializing economies in Asia. The Journal of High Technology Management Research, Volume 24, Issue 2, 2013.

4. Clayton Cristensen. The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail (Management of Innovation and Change), Harvard Business Review Press; Reprint edition, 2015.

Auxiliari:



1. Assembly resolution A.574 (14): Recommendation on general requirements for electronic navigational aids
2. Assembly resolution A.382 (X): Magnetic compasses: carriage and performance standards

Recommended bibliography:
Practical Navigator USA 2008

FINAL REMARKS FROM THE LECTURER/COURSE INSTRUCTOR

The student can independently present in the auditorium their knowledge in navigation equipment.



2. Electrical Power Systems

**SUBJECT PROGRAM:
EE 346 ELECTRICAL POWER SYSTEMS**

Lecturer/course instructor:

Hours:

Subject typology:

Academic year / Semester:

Type of subject:

Study program:

Subject code:

E-mail address of the lecturer/course instructor:

SUMMARY AND LEARNING OUTCOMES

The course aims to provide an advanced knowledge about analysis and control of modern electrical power systems, and it aims to provide an understanding of modern technologies that are necessary for modelling and control of modern power systems involving smart grids. The knowledge about modern multi-disciplinary smart grid technologies is provided, and it covers the range of topics related to smart grids: smart grid communications, demand and response of smart grids, renewable energy sources in smart grids, sensor networks and economics of smart grids in relation to consumers. The student is introduced to conventional and modern renewable energy sources, their environmental impacts, and their integration into smart grid. Course describes the components of smart grids, their impact on energy industry, and in addition, it covers smart grid related topics such as demand management and the reduction of negative environmental impacts.

Learning outcomes:

After completing this course the student should:

- possess advanced knowledge about methods for dynamic power system analysis, including steady state and transient stability.
- understand the concepts and principles of smart grid, technology enabling, and demand participation
- possess advanced knowledge about renewable energy sources: solar energy, wind energy, hydropower, biomass, geothermal energy and ocean energy and their environmental impacts
- understand the structure of an electricity market in either regulated or deregulated market conditions
- understand the impacts of renewable resources to the smart grid, and understand the various issues associated with integrating such resources to the smart grid

BASIC CONCEPTS:

Generation, transmission, distribution and use of electrical power. Typical electrical networks. Load charts. Modeling of electrical network elements and their parameters. Short-circuit currents. Techno-



economic evaluation. Power losses. Conductor sections. Compensation. Power flow calculations. Power flow distribution. Newton-Raphson and Gaus-Seidel methods. Computation softwares. Smart grids.

SUBJECT TOPICS:

Definition of electrical power systems and operation: generation, transmission, distribution and use of electrical power. Typical structures of electrical networks. Load charts and their characteristics. Statistical calculations of load charts. Mathematical modeling of electrical power system elements and their parameters. Load flow calculations and voltage levels in simple networks. Short-circuit currents calculation. Conductor calculation. Basics of techno-economic design. Power and energy losses. Electrical system networks selection. Compensation tools selection. Power flow calculation on developed networks. Newton-Raphson and Gaus-Seidel methods. Calculation softwares. Smart Grid Technologies: integration of classical power utilities, renewable energy plants and battery storage system; active consumers; the environment; Real-Time monitoring system of the electricity consumption.

Midterm test.

Submission and Defence of Course Assignments.

Final test.

FORM OF KNOWLEDGE EVALUATION

Student obligations for the subject:

The student must independently perform 1 practical home work:

1. Practical calculations of electrical power systems:
 - a. Load flow analysis
 - b. Short-circuit currents analysis
 - c. Mechanical and thermal analysis of the elements

ATTENDANCE: Obligatory up to 75 %.

THE METHOD OF EVALUATION

Semester progress	= 5%
Home Work + Individual Exercises	= 10 %
Intermediate Test	= 25 %
Final Test	= 60 %
Total	= 100 %

BIBLIOGRAPHY

Mandatory basic bibliography:

- [1]. Leksione të shkruara, Vlorë 2020
- [2]. Gj. Pasko. Rrjeti dhe sistemi elektrik,1 1993

Reccomended bibliography:

- [3]. Kirtley, James. Electric Power Principles: Sources, Conversion, Distribution and Use. Wiley, 2010.
- [4] Machowski, J., Bialek, J. Bumby, J.: Power System Dynamics and Stability. John Wiley & Sons, 2008.
- [5] Masters, G.M, Renewable and Efficient Electric Power Systems, John Wiley & Sons, 2004.



- [6] Kirschen, D.S., Strbac, G.: Fundamentals of Power System Economics, John Wiley & Sons, 2009.
- [7] Tomar, A., Kandari R.: Advances in Smart Grid Power System, Network, Control and Security. Academic Press, 2020.
- [8] Das, J.C.: Understanding Symmetrical Components for Power System Modeling, Wiley-IEEE Press; 1st edition, 2017.
- [9] Kasikci, I.: Short Circuits in Power Systems: A Practical Guide to IEC 60909-0, Wiley-VCH; 2nd edition, 2017.

FINAL REMARKS FROM THE LECTURER/COURSE INSTRUCTOR

The student can independently present in the auditorium their individual course projects .



3. Maritime Communications

COURSE OUTLINE DET 316 MARITIME COMMUNICATIONS

Lecturer/course instructor:

Hours:

Subject typology:

Academic year / Semester:

Type of subject:

Study program:

Subject code:

E-mail address of the lecturer/course instructor:

SUMMARY AND LEARNING OUTCOMES

Introduce to the students the basic knowledge over radiocommunication in terms of International Code of Signals, emergency distress signals, SOLAS regulations, VHS, UHF Radios, DSC, INMARSAT, GMDSS, COSPAS-SARSAT, based on STCW'10 and IMO requirements.

The student should also be able to choose and manage in the most appropriate way the cloud-hosted technology for communication.

Perform all tasks from GMDSS maritime communications in an independent way.

Handle all marine GMDSS equipment.

Use the devices in the prescribed manner.

Describe the physical characteristics of the propagation of electromagnetic waves independent of the frequency range (MF, HF or VHF).

Define and describe parts of the GMDSS system.

Present the operation of the GMDSS system in a practical way in cases of danger, emergency, safety or routine communications.

Use the obligatory and supplementary literature of the ship's radio station, keep a radio diary and other documentation in the correct way.

BASIC CONCEPTS:

- Radio communication systems;
- International Rules and regulations for communication
- Global Maritime Distress and Safety System
- Satellite communication and Cloud communication

SUBJECT TOPICS:

1. Signaling by Morse Code
2. International Code of Signals
3. SAR Convention and communication approach
4. SOLAS – Radio communications (amended chapter IV)



5. ITU Radio Regulations
6. GMDSS Introduction
7. Basic concept of the GMDSS
8. Communications systems in the GMDSS, NAVTEX
9. INMARSAT system
10. COSPAS–SARSAT system
11. Digital selective calling system
12. AUTOMATIC IDENTIFICATION SYSTEM (AIS)
13. AIS Applications
14. NISAT, VTS
15. MAREM, VMS, HAZMAT
16. Evolution of Communication Technologies
17. Cloud communication platforms
18. C4 (Command-Control-Coordination-Communication) at Sea

FORM OF KNOWLEDGE EVALUATION

ATTENDANCE: The student, which results in less than 75% attendance for the period of each partial examination, the period for which the test is to be attended cannot access the respective exam and will be evaluated by M(Absense). If the student has attended the course, but does not appear in the next exam, will be evaluated NP (Not Present).

Student obligations for the subject:

The student must independently perform 1 practical home work.

THE METHOD OF EVALUATION

Semester assesement	= 5%
Home Work	= 10 %
Partial Exam	= 25 %
Final Exam	= 60 %
Total	= 100 %

The grade rating is based on the conversion of the total assessment in%, grades 5-10 progressively 41 to 100%

LITERATURE:

Mandatory basic literature:

1. Tekst of lectures "Maritime Radio-communication", Suard Alizoti

Recommended literature:

2. IMO (1985). International Code of Signals, London, IMO Publication Admiralty List of Radio Signals (2003-2004). Volume 5, London, British Publications
3. Manual for the Maritime Mobile and Maritime Mobile – Satellite Services Volume I and II (2017)
4. IMO (2000). Search and Rescue Transponder (SART), London, United Kingdom 2000
5. National Weather Service Marine Forecast (2009). INMARSAT – C Safety Net.



6. United States Coast Guard(1995). Automatic Identification System, United States Coast Guard Navigation Centre
7. United States Coast Guard(1995). Digital Selective Call Manual, United States Coast Guard Navigation Centre
8. Festim Skendaj (2007). Permbledhje leksionesh mbi Radiokomunikimin Detar.
9. GMDSS Handbook, Handbook on the Global Maritime Distress and Safety System; INTERNATIONAL MARITIME ORGANIZATION 4 Albert Embankment, London SE1 7SR; 3rd Edition, 2001; (2 4 6 8 10 9 7 5 3 1) ISBN 92-801-5098-7; Sales number: IMO-970E.
10. IMO (2000). Search and Rescue Transponder (SART), London, United Kingdom 2000
11. Cloud Computing Concepts, Technology& Architecture; Thomas Erl, Zaigham Mahmood, and Ricardo Puttin ISBN-13: 978-0-13-338752-0
12. IMO (2006). International Convention on Safety of Life at Sea, London, IMO Publications
13. Radio Regulations Edition of 2016, ITU, Geneva, September 2016
14. IMO Model course 1.25 plus compendium (2015 Edition), IMO, 2015
15. IAMSAR Manual International Aeronautical And Maritime Search And Rescue Manual (2016 Edition), IMO, 2016
16. Lees, G. D. and Williamson, W.G.: Handbook for Marine Radio Communications, Lloyds of London Press, London, 1999
17. Waugh ,I., The Mariners Guide to Marine Communications, The Nautical Institute, 2nd edition, London, 2007
18. Calcutt, D., Tetley, L., Understanding GMDSS 1st Edition, Kindle Edition, 2012
19. Inmarsat Maritime Communications Handbook, 2nd Issue, Inmarsat, London
20. Ilčev, S.D., Global Mobile Satellite Communications: For Maritime, Land and Aeronautical Applications, Springer, 2005

Communication:

Homework exercises, course assignments and any other announcements will be given in the classroom and / or at the official address of Vlora University "Ismail Qemali" on the Internet: www.univlora.edu.al.

Honesty code:

Copying from one another to exams, course assignments, etc. is not allowed. Breaking this rule will be accompanied by punitive measures that go up to university exclusion.

Mandatory rules on the course:

It is not allowed to use mobile phones at the auditorium.



4. Innovation and Entrepreneurship

**SUBJECT PROGRAM:
CS 420 Innovation and Entrepreneurship**

Lecturer/course instructor:

Hours:

Subject typology:

Academic year / Semester:

Type of subject:

Study program:

Subject code:

E-mail address of the lecturer/course instructor:

SUMMARY AND LEARNING OUTCOMES

This course aims to provide students with an understanding of the nature of enterprise and entrepreneurship and introduces the role of the entrepreneur, innovation and technology in the entrepreneurial process. This course is designed to help master's level students, including those from fields outside of business, understand how technological and social innovations lead to new businesses and how those are created, funded, governed, and grown - to understand what it takes and how it works to turn an idea into a real business.

BASIC CONCEPTS:

Innovation, the basic definition and classification. Entrepreneurship, creation of competitive advantage based on innovation. Big Data and Cloud Computing. Internet of Things. Also, to provide theoretical knowledge and practical skills needed for business management in the area of innovation management.

SUBJECT TOPICS:

Creating complex objects.

Brief history of innovation. Theories of innovation. Technologies as beginning for innovations (IoT, data science, big data) Fundamentals of Entrepreneurship. Some Definitions. Entrepreneurial Strategy. The Entrepreneurial Process. Creativity and Innovation. Website overview/planning. Website creation (building). Search Engine Optimization (SEO) / Website analytics Email marketing. Social media marketing. YouTube. Facebook. Instagram / Twitter. Big data : definition and taxonomy. Big data value for the enterprise. Introduction to Cloud Computing. Components of a computing cloud. Differentiating types of clouds: public, private, hybrid. Cloud Computing Platforms. Virtual Amazon Cloud. Internet of Things. IoT Data and the Cloud

Innovation classification. Innovative activities in place a common classification of activities.

Overview of contemporary innovation processes. Design thinking methodology. Service design.

Project based management of innovation activities. Project cycle of innovation. Innovation and investment projects. Project preparation process. Project components. Project structure.



The generation and formulation of innovative ideas
 Innovation in business and its management. Management functions and methods of innovation activities.
 Planning. Organization. Control. Human resource management
 Teamwork role in fostering employees' creativity and initiative. Generation of the innovation project.
 Practical course work. Business idea generation (how to promote tourism, marketing and business promotion elements. Project (business plan) preparation. Project (business plan) presentation.

Midterm test.
Submission and Defence of Course Assignments.
Final test.

M.b. - Main bibliography. / R.b. - Recommended bibliography.

FORM OF KNOWLEDGE EVALUATION

Student obligations for the subject:

The student must independently perform 3 practical homework:

- Work No. 1 Design Your Business Model
- Work No. 2 Technology-based Business Model
- Work No. 3 Development project.

ATTENDANCE: Obligatory up to 75 %.

THE METHOD OF EVALUATION

Semester progress (MS1+MS2+MS3)	= 15%
Homework + Individual Exercises	= 15 %
Intermediate Test	= 20 %
Final Test	= 50 %
Total	= 100 %

BIBLIOGRAPHY

Mandatory basic bibliography:

1. Innovation and Entrepreneurship by Peter F. Drucker ISBN 9781138019195
2. Bessant, John, Tidd, Joseph (2015), Innovation and entrepreneurship. Hoboken, NJ, John Wiley & Sons
3. Cloud Computing Concepts, Technology & Architecture; Thomas Erl, Zaigham Mahmood, and Ricardo Puttin ISBN-13: 978-0-13-338752-0
4. Social Media Marketing for Beginners 2021 by Chandler Miller, Donald Preace
5. Data Strategy. How to Profit from a World of Big Data, Analytics and the Internet of Things by Bernard Marr
6. Dawson P., Andriopoulos C. Managing Change, Creativity and innovation (third edition), SAGE Publications Ltd, 2017.
7. Thomke, S.,Feinberg B. Design thinking and innovation at apple. Harvard Business School case study (9-609-
8. Schilling M., Strategic Management of Technological Innovation (Irwin Management) 5th Edition. McGraw-Hill Education, 2016.
9. Trott, P. Innovation management and new product development. Harlow : FT/Prentice Hall, 2012.



10. Goffin, K., Mitchell, R. Innovation Management: Effective strategy and implementation 3rd ed. Red Globe Press, 2017.
11. Wonglimpiyarat, J. Innovation financing policies for entrepreneurial development - Cases of Singapore and Taiwan as newly industrializing economies in Asia. The Journal of High Technology Management Research, Volume 24, Issue 2, 2013.
12. Clayton Cristensen. The Innovator's Dilemma: When New Technologies Cause Great Firms to Fail (Management of Innovation and Change), Harvard Business Review Press; Reprint edition, 2015.
13. Entrepreneurship: starting and operating a small business. 2016. Global edition. Pearson education.
14. Effectual entrepreneurship / Stuart Read ... [et al.]. 2017. Abingdon: Routledge.
15. Technology entrepreneurship : taking innovation to the marketplace / Thomas N. Duening, Robert D. Hisrich, Michael A. Lechter. 2015. London: Academic Press.

Video and PowerPoint links:

Introduction to Entrepreneurship <https://www.youtube.com/watch?v=JaymOioQ7jE>

Cloud Computing <https://www.youtube.com/watch?v=RWgW-CgdIk0>

Internet of Things <https://www.youtube.com/watch?v=OfGxbxUCa2k>

Articles:

1. Drucker, Peter "Discipline of Innovation"
2. Iansiti & Lakhani, "Digital Ubiquity"
3. Christensen et al.: "Marketing Malpractice"
4. Nohria, Joyce, "What Really Works"
5. Anthony, Scott et al.: "Innovation Isn't the Answer to All Your Problems"

Reccomended bibliography:

1. The Startup Owner's Manual: The Step-By-Step Guide for Building a Great Company - Steve Blank and Bob Dorf
2. Running Lean: Iterate from Plan A to a Plan That Works (Lean Series) - Ash Maurya

FINAL REMARKS FROM THE LECTURER/COURSE INSTRUCTOR

Students are expected to attend all classes, and active participation in class is required. Active participation is not just attending class, but it includes being well prepared and engaging in active discussions.



5. Software Application in Industry

SUBJECT PROGRAM: MEK 414 SOFTWARE APPLICATION IN INDUSTRY

Lecturer/course instructor: Prof.Asoc. Kristofor Lapa
Hours: 3 hrs lectures / 2 hrs exercises, practical work, 8 credits
Subject typology: Integrative course, C
Academic year / Semester: 2021-2022 / Autumn 2021
Type of subject: Mandatory
Study program: Master of first level in “Industrial and Naval Operations”
Subject code: MEK 414
E-mail address of the lecturer/course instructor: kristofor.lapa@univlora.edu.al

SUMMARY AND LEARNING OUTCOMES

The student should be able to choose, apply and manage the most appropriate engineering software in technological, industrial and design processes in the industrial sectors.

BASIC CONCEPTS:

3D CAD in 3 dimensional modeling and its use with the help of the other 3D software
Use of MaxSurf software in hull modeling and in geometric, hydrostatic and hydrodynamic calculations of ships.
Familiarity with CATIA/Solid Works software and their use in Mechanics.

SUBJECT TOPICS:

Creating complex objects.
Regions Creating and extracting characteristics from a regional model (MASSPROP)
Operations with regions (Union, Subtract, Intersect)
Paper model and Paper space
Creating 3D objects (Wireframe Modeling, Surface Modeling, Solid Modeling). 3D images
Using 3D Faces. Construction of objects with 3D Faces; Working with 3D surface commands (Edgesurf, Rulesurf, Tabsurf, Revsurf, 3D Mesh).
Editing, designing and completing the project in Maxsurf.
The main topics include three-dimensional modeling of parts and assembly, visualization, images in orthogonal layer design, auxiliary, sectional and cutting images, exploded images, dimensioning and tolerances, list of materials and computer-generated modeling documentation.
The main topics include three-dimensional modeling of parts and assembly, visualization, images in orthogonal design, layers, auxiliary, sectional and cutting images, exploded images, dimensioning and tolerances, list of materials and computer-generated modeling documentation.
3D Modeling, Surfacing, Modularity, 3D Printing
Internet of Things - Softwares Application in Industry
Maritime Internet of Things, keynote
Measurement technique - From sensor to computer



Logging of data

Data transfer - Satellite, 3G / 4G / 5G and wifi, performance and cost, Important protocols

Case I: Data from own mobile to your own PC via the Cloud

Big Data / machine learning – “The hype and the reality”

Condition control - Condition control as application case, technology, theory

Case II: Industrial examples from FIIZK

The future - Technology trends, The business models of the future

Midterm test.

Submission and Defence of Course Assignments.

Final test.

M.b. - Main bibliography. / R.b. - Recommended bibliography.

FORM OF KNOWLEDGE EVALUATION

Student obligations for the subject:

The student must independently perform 3 practical home work:

Work No. 1 (AutoCAD). Homework Instruction pages 59-76 [4]

For the given home work to build the 3D model and the graphic presentation of the working steps. (each students according to his register number 1-40, pages 51-58, [4]).

Work No. 2 (MaxSurf). Tutorials page 81-135 [9]

For the given work to model the hull of a ship according to examples in Tutorial 1- 5.

Work No. 3 (CATIA). [6]

For the given work to create a model according to the examples in “Load the part file Lab00JD32.CATPart”

ATTENDANCE: Obligatory up to 75 %.

THE METHOD OF EVALUATION

Semester progress (MS1+MS2+MS3) = 5%

Home Work + Individual Exercises = 15 %

Intermediate Test = 30 %

Final Test = 50 %

Total = 100 %

BIBLIOGRAPHY

Mandatory basic bibliography:

AutoCAD

Dr.Sc. S. Avdiu – Vizatimi me Kompjuter 2004 – Prishtine 2003

Dr.Sc. Sadullah Avdiu – Vizatimi me Kompjuter (AutoCAD 2008) – Fakulteti i Inxhinierise Mekanike, Prishtine 2008

MaxSurf

MaxSurf Modeler – Version 20, Bentley Systems, Incorporated 2014

MaxSurf Modeler Program & User Manual – Version 20, Bentley Systems, Incorporated 2014

CATIA

CATIA V5 Workbook, Richard Cozzens, Schroff Development Corporation

Designing for Change with CATIA V5 Methods and Applications – Part Design, Sketcher,

Video and PowerPoint links:

- 45 sec https://www.dropbox.com/s/dyy3xhndgqrr88w/AugmentCity_u4ssc.mp4?dl=0



- Childs view <https://vimeo.com/336064144>
- Joel talking <https://www.youtube.com/watch?v=pG-IfsH4JVY>
- Long version of Joel's PowerPoint in Geneve 13.05.2019 https://www.dropbox.com/s/2zr149k7hm9jvft/AugmentCity_ITU_Geneve13May.pptx?dl=0

Reccomended bibliography:

1. T.T.Wohlens – Applying AutoCAD 2002 Advanced – New York, USA 2003
2. Drawing, Assembly Design, Joseph A. Nowak, Design Application Solutions, Inc.

FINAL REMARKS FROM THE LECTURER/COURSE INSTRUCTOR

The student can independently present in the auditorium various software related to engineering applications.



6. Naval Constructions

SUBJECT PROGRAM: NAV 320 NAVAL CONSTRUCTION

Lecturer/course instructor: Prof.Asoc. Luljeta Gusha

Hours: 3 hrs lectures / 2 hrs exercises, practical work, 8 credits

Subject typology: Integrative course, C

Academic year / Semester: 2021-2022 / Autumn 2021

Type of subject: Mandatory

Study program: Bachelor program. Naval Architecture and Marine Engineering.

Subject code: NAV 320

E-mail address of the lecturer/course instructor: Luljeta.gusha@univlora.edu.al

SUMMARY AND LEARNING OUTCOMES

Naval Constructions, is a special naval engineering course, that deals with the behavior of naval structures, subjected to various types of loading. Determination of the stresses, strains, and displacements, produced by the loads. Knowing these quantities for all values of load up to the failure load gives a complete picture behavior of those structures (beam-ship, panels etc). The course also includes a project course and homework, where a link between theory and application will be made.

Upon completion of this course student should:

- Be able to understand the concept of forces acting in ships. Forces (shear forces and bending moment in still water and in wave sea condition) acting to the ship considering the ship as a beam
- Be able to understand and analyze the behavior of global structure of ships.
- Be able to understand and calculate stresses and strains in global level of ship structures.
- Be able to find moments of resistance of different shapes.
- Be able to draw shear force and bending moment diagrams for different loading case conditions of ships.
- Be able to analyze and apply simple study case by finite element methods:
 - o aspects of constructions of stiffened plate panels
 - o the behavior of anisotropic plate (stiffened plate panels)
 - o the advantages and disadvantages of different available lightweight materials in marine structures
 - o introduction to optimization of structures

BASIC CONCEPTS:



The behavior of global structure of ships. Materials for naval structures. Top 10 materials industry trends and Innovations in 2021. Application of anisotropic plate in marine structures. Naval Registers of Classification. Naval Registers of Classification. Finite Element Method. Naval Registers of Classification.

SUBJECT TOPICS:

Rationally –Based Structural Design.
Loads, Response, Limit States.
Materials for naval structures. Top 10 materials industry trends and Innovations in 2021.
Hull Girder Response Analysis – Prismatic Beam. (Analyses of Hull Girder Stress and Deflection)
Hull Girder Response Analysis – Nonprismatic Beam.
Anisotropic plates. Composite 2020. A multitude of markets.
Naval Registers of Classification.
Analysis of Ship Structures with Finite Element Method.
Aspects of Structural Optimizations.

Midterm test.
Submission and Defence of Course Assignments.
Final test.

M.b. - Main bibliography. / R.b. - Recommended bibliography.

FORM OF KNOWLEDGE EVALUATION

Student obligations for the subject:

The student must independently perform 1 practical home work:
Work No.

For the given home work to build the 3D model and the graphic presentation of the working steps. (each students according to his register number 1-40, pages 51-58, [4]).

Work No. 2 (MaxSurf). Tutorials page 81-135 [9]

For the given work to model the hull of a ship according to examples in Tutorial 1- 5.

Work No. 3 (CATIA). [6]

For the given work to create a model according to the examples in “Load the part file Lab00JD32.CATPart”

ATTENDANCE: Obligatory up to 75 %.

THE METHOD OF EVALUATION

Semester progress (MS1+MS2+MS3)	= 5%
Home Work + Individual Exercises	= 15 %
Intermediate Test	= 30 %
Final Test	= 50 %
Total	= 100 %

BIBLIOGRAPHY

Mandatory basic bibliography:

AutoCAD

1. Dr.Sc. S. Avdiu – Vizatimi me Kompjuter 2004 – Prishtine 2003



2. Dr.Sc. Sadullah Avdiu – Vizatimi me Kompjuter (AutoCAD 2008) – Fakulteti i Inxhinierise Mekanike, Prishtine 2008
3. MaxSurf
4. MaxSurf Modeler – Version 20, Bentley Systems, Incorporated 2014
5. MaxSurf Modeler Program & User Manual – Version 20, Bentley Systems, Incorporated 2014

CATIA

1. CATT A V5 Workbook, Richard Cozzens, Schroff Development Corporation
2. Designing for Change with CATIA V5 Methods and Applications – Part Design, Sketcher,

Video and PowerPoint links:

1. 45 sec https://www.dropbox.com/s/dyy3xhndgqrr88w/AugmentCity_u4ssc.mp4?dl=0
2. Childs view <https://vimeo.com/336064144>
3. Joel talking <https://www.youtube.com/watch?v=pG-IfsH4JVY>
4. Long version of Joel's PowerPoint in Geneve 13.05.2019 https://www.dropbox.com/s/2zrl49k7hm9jvft/AugmentCity_ITU_Geneve13May.pptx?dl=0

Reccomended bibliography:

T.T.Wohlrs – Applying AutoCAD 2002 Advanced – New York, USA 2003

Drawing, Assembly Design, Joseph A. Nowak, Design Application Solutions, Inc.

1: Introduction, pipeline and UI in Autodesk Maya:

- 3D production pipeline
- Installation and UI
- Creating simple shapes and objects
- Exercise: Create a scene for the model using polygon primitives.

2: Modeling tools

- Tips on how to start modeling
- The modeling toolkit
- Useful modeling tools
- Exercise: Model an object using the modeling toolkit.

3: Materials, texturing and lights

- UV mapping/texture layout
- Arnold Renderer and settings
- Materials and displacement maps
- Adding lights
- Exercise: Create a texture layout for the model. Add materials and lights, and test the render

4: Cameras, animation and rendering.

- Presenting the model
- Adding cameras and animation
- Render settings
- Render a sequence and convert to movie clip.
- Exercise: Animate a camera using different angles and movements to highlight details. Export the animation to a movie clip.



BLUEWBC

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FINAL REMARKS FROM THE LECTURER/COURSE INSTRUCTOR

The student can independently present in the auditorium various software related to engineering applications.



7. Ship Operation Maintenance and Repair

SUBJECT PROGRAM: NAV 380 SHIP OPERATION MAINTENANCE AND REPAIR

Lecturer/course instructor: Msc. Miranda VIDHAJ

Hours: 2 hrs lectures / 1 hrs exercises, practical work, 3 credits

Subject typology: Lende karakterizuese

Academic year / Semester: 2021-2022 / Autumn 2021

Type of subject: Elective

Study program: Bachelor in “Naval Engineering”

Subject code: NAV 380

E-mail address of the lecturer/course instructor: miranda.vidhaj@univlora.edu.al

SUMMARY AND LEARNING OUTCOMES

The course aims to familiarize the students with the principles of operation, maintenance and repair of auxiliary machinery and devices on board ship, corrosion protection, as well as maintenance and repair of the underwater part of the ship's hull, considering also STCW'10 and IMO 7.04 (1.5.1, 1.5.2, 1.5.3).

BASIC CONCEPTS:

Demonstrates a knowledge and understanding of:

1. Preparation, operation, fault detection and necessary measures to prevent damage for purifier and fuel oil treatment, air compressor, evaporators and distillers and refrigerator.
2. Operational characteristics of pumps and piping systems including control systems.
3. Oily water separator/similar equipment requirements end operation.
4. Defining and explaining the basic causes of malfunction and failures.
5. Describing the ways of maintaining the underwater part of the hull.
6. Analyse anti-corrosion designs and measures.
7. IoT (internet of things) in order to enhance ship inspection, maintenance, safety and performance.

SUBJECT TOPICS:

I week: Introductions, preparation and enrolment to the Term.

II week: Preparation, operation, fault detection and necessary measures to prevent damage for the purifier and fuel oil treatment, air compressor, evaporators and distillers and refrigerator.

III week: Operation of pumping systems. Routine pumping operations.

IV week: Operation of Bilge, Ballast and Cargo Pumping Systems.

V week: Oily water separator/similar equipment requirements and operation.

VI week: Maintenance costs, effect on the maintenance costs over the entire life-span of the equipment, effect of the participants on the maintenance costs.



VII week: Damage and failures: initial, accidental, time-induced failures and malfunctions. The function of the distribution of failures: failure rate, failure index.

VIII week: Reliability of technical systems: reliability with regard to initial malfunctions and failures, accidental failures, time-induced failures. Standard reliability curve.

IX week: Technology of maintenance: requirements, spare parts, work lists, tools and equipment for maintenance, diagnostic tools and devices.

X week: Organization of maintenance. Preventive maintenance, corrective maintenance, maintenance according to the state of the components. Characteristic value of the technical systems state: technical diagnostics, methods of technical diagnostics.

XI week: Safe management and efficient procedures in maintenance and repair in accordance with the vessel's SMS.

XII week: Types and forms of corrosion. Forms of corrosion. Chemical and electro-chemical corrosion. Destruction of inorganic nonmetal and organic materials. Protection against corrosion.

XIII week: Testing of corrosion and protection. Corrosive properties of certain technical materials. Selection of materials. Design measures against corrosion. Cathode and anode protection. Protective paints and coating. Pre-processing of the surface.

XIV week: Maintenance and repair of the underwater part of the ship's hull: spare parts. Software supporting maintenance procedure and maintenance planning.

XV week: IoT (Internet of Things) in order to enhance ship inspection, maintenance, safety and performance

- Sustainability – economy, society and environment and UN Sustainable Development Goals.
- IMO's technical assistance work and the SDGs
<https://wwwcdn.imo.org/localresources/en/MediaCentre/HotTopics/Documents/TC.1-Circ.69.pdf>
- IMO Secretariat's SDG Strategy
https://wwwcdn.imo.org/localresources/en/MediaCentre/Documents/SDG_Strategy%20and%20planning.pdf
- IMO actions for UN SDG:
- IMO SDG brochure
<https://wwwcdn.imo.org/localresources/en/MediaCentre/HotTopics/Documents/IMO%20SDG%20Brochure.pdf>
- STCW and global standards (SDG 4)
- GloMEEP and GMN project (SDG 7)
- Hong Kong Convention (SDG 12)

Midterm test.

Submission and Defence of Course Assignments.

Final test.

M.b. - Main bibliography. / R.b. - Recommended bibliography.

FORM OF KNOWLEDGE EVALUATION

Student obligations for the subject:

Course Assignments

ATTENDANCE: Obligatory up to 75 %.



THE METHOD OF EVALUATION

Semester progress	= 5%
Home Work + Individual Exercises	= 10 %
Intermediate Test	= 30 %
Final Test	= 55 %
Total	= 100 %

BIBLIOGRAPHY

Mandatory basic bibliography:

1. Lectures prepared by the lecturer of the course which will be distributed in the auditorium.
2. Pajisje dhe Sisteme Ndhmëse në Anije. *Djana Bazini 2010*
3. Ship Repair & Maintenance Handbook 2012; Author: Dieter Mergner; ISBN: 9781901290622
4. Paul A Russell, Leslie Jackson & Thomas D. Morton, "General Engineering Knowledge for Marine Engineers", 8 th Edition, Thomas Reed Publications, United Kingdom 2003.

Reccomended bibliography:

1. Marine Auxiliary Machinery, H. D. McGeorge, (7 th Edition - 1999)
2. Introduction to Marine Engineering, D. A. Taylor, (2 nd Edition - 1996)
3. Transforming our world: the 2030 Agenda for Sustainable Development
https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E
4. The Sustainable Development Goals Report 2020
<https://unstats.un.org/sdgs/report/2020/The-Sustainable-Development-Goals-Report-2020.pdf>
5. IMO's technical assistance work and the SDGs
<https://wwwcdn.imo.org/localresources/en/MediaCentre/HotTopics/Documents/TC.1-Circ.69.pdf>
6. IMO SDG brochure
<https://wwwcdn.imo.org/localresources/en/MediaCentre/HotTopics/Documents/IMO%20SDG%20Brochure.pdf>
7. IMO Secretariat's SDG Strategy
https://wwwcdn.imo.org/localresources/en/MediaCentre/Documents/SDG_Strategy%20and%20planning.pdf

FINAL REMARKS FROM THE LECTURER/COURSE INSTRUCTOR

It is the duty of every student to check the e-mail regularly. There will be assignments and notifications that will only be given via email.