

Basic course data			
Academic unit:	Faculty of Management		
Title of the course:	Hydraulics and Thermodynamics		
Level:	Bachelor		
Status of the Course:	Elective		
Year of studies:	II		
Number of hours per week:	4		
Value on credit - ECTS:	5		
Time / location:			
The teacher of the course:	Lect. Ismet Malsiu		
Details of the Contact :	<a href="mailto:ismet.malsiu@ushaf.net">ismet.malsiu@ushaf.net</a>		
<b>Description of the Course</b>			
		The study of the basic laws of hydraulics (Physical properties of liquids, Hydraulics of liquids in tranquility, Law of Pascal, Law of Archimedes, Hydraulics of liquids on the move, Equation of Bernuli). Application of Basic Laws: Pumpes and Water Turbines. Introduction to Thermodynamics, The sizes of the fluids state. Equation of ideal gas state. External Impacts (Mechanical Work, Volume and Heat Exchanging). First and Second Law of Thermodynamics), Application of Basic Laws: The Compressors, Steam Turbines.	
<b>Objectives of the course:</b>		Purpose of this course is for the student to benefit theoretical and practical knowledge of the relevant subject and also ability to compile engineering problems in these areas.	
<b>Expected learning outcomes:</b>		<p>Upon completion of this module the student will be able to:</p> <ul style="list-style-type: none"> <li>• Understands theoretical concepts of hydraulics and thermodynamics and evaluate practical interpretations.</li> <li>• posit the compile of engineering problems</li> <li>• Know to develop independent engineering studies.</li> </ul>	
<b>Contribution to the student's workload (which should correspond to the student's learning outcomes)</b>			
The Activity	Hour	Day /week	Total
Lectures	2	15	30
Theoretical / laboratory exercises	2	15	30
Practical work	5	1	5
Contacts with the teacher / consultations	1	1	1

Field exercises	-	-	-
Seminars, Test	5	2	10
Homework	1	10	10
Final Preparation for the exam	1	15	15
	10	1	10
Time spent on assessment (tests, quiz, final exam)	5	2	10
Projects, presentations, etc	1	4	4
<b>Totali</b>			<b>125</b>
<b>Teaching Methodology:</b>	<p>The methodology of teaching the subject Hydraulics and Thermodynamics consists in holding lectures and exercises combined with case studies and classroom discussions, field examinations (practical lesson) and preparation of seminars.</p> <p>Presentation of the topic teaching in Power Point, Exercises on Large Pages. Repetition of the previous topic from certain group of students, analysis, research, and individual and team exercises. Case of study or duty (for exercise hours), regarding the topic of lecture.</p>		
<b>Methods of assessment:</b>	<p>Attendance and activity estimated with 10% of the a grades.</p> <p>Group work and presentation by group representative: 0 - 4%</p> <p>Individual work and presentation: 0 - 3%</p> <p>Activity: 0 - 3%</p> <p>Seminar work: 0 - 10%</p> <p>Test I: 0 -10%</p> <p>Test II: 0 -10%</p> <p>Final Exam: 0 - 50%</p>		
<b>Literature</b>			
<b>Basic Literature:</b>	<p>Basic Literature:</p> <ul style="list-style-type: none"> <li>➤ Mekanika e Fluideve, Tiranë 2006, Antonaq Londo, Robert Plumbi;</li> <li>➤ Mekanika e Fluideve, Prishtinë, 2008, Prof.Asoc.Dr.Januz Bunjaku, Ligjeratat e autorizuar;</li> <li>➤ Hidraulika dhe Termodinamika, Prishtinë, 1998, Mr.Inxh.Xhemajl Fejzullahu, Dr. Inxh. Fejzullah Krasniqi</li> <li>➤ "Summary of Duties of Fluid Mechanics", Author Group, FME, Pristina, 1996.</li> <li>➤ "Summary of Duties From Thermodynamics", Author Group, FME, Pristina, 1995.</li> </ul>		

	<ul style="list-style-type: none"> <li>➤ "Termoteknika", University of Tirana, I.Demneri, A.Shtjefni, R.Karapici, Tirana, 2003.</li> </ul>
<b>Additional literature:</b>	<p>Additional literature:</p> <ul style="list-style-type: none"> <li>➤ "The machines and Technical Equipments" , BUSINESS COLLEGE Pristina, Xhevat Berisha, Prishtina, 2011.</li> <li>➤ "General Thermodynamics", University of Tirana, Hysen Agolli, Tirana, 1987.</li> <li>➤ FUNDAMENTALS OF FLUID MECHANICS, Munson / Young / Okiishi with Cd, USA 2002</li> <li>➤ "Machine II", University of Tirana, H.Agolli, N.Pema, A.Kodra, Tirana, 1988.</li> </ul>
<b>The designed lesson plan:</b>	
<b>Week</b>	<b>Lectures and exercise that will be developed</b>
<i>First Week:</i>	<p><b>Theoretical basis of hydraulics; Physical properties of liquids. 2 hours</b>  <b>Numerical exercises: Physical properties of liquids. 2 hours</b>  MECHANICS OF FLUIDS, Pristina, 2008  Dr.SAN.JANUZ BUNJAKU, associate professor  Authorized lectures  HYDRAULICS AND TERMODINAMICS, Pristina, 1998, Mr. Sc. XHEMAJL FEJZULLAHU, Dr.Ing. FEJZULLAH KRASNIQI.  "Summary of Duties of Fluid Mechanics", Author Group, FME, Pristina, 1996.</p>
<i>Second Week:</i>	<p><b>The hydraulics of Fluids in tranquility; Pascal's Law. Archimedes Law. 2 hours</b>  <b>Numerical exercises: Hydraulics of fluid in tranquility; Pascal's Law. Archimedes Law. 2 hours</b>    MECHANICS OF FLUIDS, Pristina, 2008  Dr.SAN.JANUZ BUNJAKU, associate professor  Authorized lectures    HYDRAULICS AND TERMODINAMICS, Pristina, 1998, Mr. Sc. XHEMAJL FEJZULLAHU, Dr.Ing. FEJZULLAH KRASNIQI.    "Summary of Duties of Fluid Mechanics", Author Group, FME, Pristina, 1996.</p>
<i>Third week:</i>	<p><b>Hydraulics of fluids in motion; The flow and equation of continuity. 2 Ore</b>  <b>Numerical exercises: The hydraulics of fluids in</b></p>

	<p><b>motion; The flow and equation of continuity. 2 hours</b></p> <p>MECHANICS OF FLUIDS, Pristina, 2008 Dr.SAN.JANUZ BUNJAKU, associate professor Authorized lectures</p> <p>HYDRAULICS AND TERMODINAMICS, Pristina, 1998, Mr. Sc. XHEMAJL FEJZULLAHU, Dr.Ing. FEJZULLAH KRASNIQI.</p> <p>"Summary of Duties of Fluid Mechanics", Author Group, FME, Pristina, 1996.</p>
<i>Fourth Week:</i>	<p><b>Bernoulli's Equation for Ideal Fluid; The hydraulics Resistance for Real Fluids. 2 hours</b> <b>Numerical exercises: Bernoulli's equation for ideal fluid; The hydraulics Resistance for Real Fluids. 2 hours</b></p> <p>MECHANICS OF FLUIDS, Pristina, 2008 Dr.SAN.JANUZ BUNJAKU, associate professor Authorized lectures</p> <p>HYDRAULICS AND TERMODINAMICS, Pristina, 1998, Mr. Sc. XHEMAJL FEJZULLAHU, Dr.Ing. FEJZULLAH KRASNIQI.</p> <p>"Summary of Duties of Fluid Mechanics", Author Group, FME, Pristina, 1996.</p>
<i>Week Fifth:</i>	<p><b>Use of the Bernoulli equation in the dimensioning of water systems. 2 Ore</b> <b>Numerical exercises: Using the Bernoulli equation in dimensioning water systems. 2 hours</b></p> <p>MECHANICS OF FLUIDS, Pristina, 2008 Dr.SAN.JANUZ BUNJAKU, associate professor Authorized lectures</p> <p>HYDRAULICS AND TERMODINAMICS, Pristina, 1998, Mr. Sc. XHEMAJL FEJZULLAHU, Dr.Ing. FEJZULLAH KRASNIQI.</p> <p>"Summary of Duties of Fluid Mechanics", Author Group, FME, Pristina, 1996.</p>
<i>Week Six:</i>	<p><b>Hydraulic machines: Centrifugal pumps,characteristics and their choice. 2 hours</b> <b>Numerical exercises: Centrifugal pumps, characteristics and their choice. 2 hours</b> "The machines and Technical Equipments" ,</p>

	<p>BUSINESS COLLEGE Pristina, Xhevat Berisha, Prishtina, 2011.</p> <p>"Machine II", University of Tirana, H.Agolli, N.Pema, A.Kodra, Tirana, 1988.</p> <p>"Summary of Duties From Thermodynamics", Author Group, FME, Pristina, 1995.</p>
<i>Week Seven:</i>	<p><b>Hydraulic machines: Water turbines. 2 hours</b>  <b>Homework (Numerical Exercises: Water Turbines)</b>  <b>The first test ( I ) - Preliminary assessment, 2 hours hours hours</b></p> <p>"The machines and Technical Equipments" , BUSINESS COLLEGE Pristina, Xhevat Berisha, Prishtina, 2011.</p> <p>"Machine II", University of Tirana, H.Agolli, N.Pema, A.Kodra, Tirana, 1988.</p> <p>"Summary of Duties From Thermodynamics", Author Group, FME, Pristina, 1995.</p>
<i>Eighth week:</i>	<p><b>Introduction to Thermodynamics, The sizes of the termische state. 2 hours</b>  <b>Numerical exercises: The sizes of the termische state. 2 hours</b></p> <p>"The machines and Technical Equipments" , BUSINESS COLLEGE Pristina, Xhevat Berisha, Prishtina, 2011.</p> <p>"Termoteknika", University of Tirana, I.Demneri, A.Shtjefni, R.Karapici, Tirana, 2003.</p> <p>"Summary of Duties From Thermodynamics", Author Group, FME, Pristina, 1995.</p>
<i>Ninth week:</i>	<p><b>The equation of the ideal gas state. 2 hours</b>  <b>Numerical exercises: The equation of the ideal gas state. 2 hours</b></p> <p>"The machines and Technical Equipments" , BUSINESS COLLEGE Pristina, Xhevat Berisha, Prishtina, 2011.</p> <p>"Termoteknika", University of Tirana, I.Demneri,</p>

	<p>A.Shtjefni, R.Karapici, Tirana, 2003.</p> <p>"Summary of Duties From Thermodynamics", Author Group, FME, Pristina, 1995.</p>
<i>Tenth Week:</i>	<p><b>External Impacts (Mechanical Work, Volume and Heat Exchanged). 2 hours</b> <b>Numerical Exercises: Mechanical Work, Volume and Heat Exchanged. 2 hours</b></p> <p>"The machines and Technical Equipments" , BUSINESS COLLEGE Pristina, Xhevat Berisha, Prishtina, 2011.</p> <p>"Termoteknika", University of Tirana, I.Demneri, A.Shtjefni, R.Karapici, Tirana, 2003.</p> <p>"Summary of Duties From Thermodynamics", Author Group, FME, Pristina, 1995.</p>
<i>Eleventh Week:</i>	<p><b>The First Law of Thermodynamics (Internal Energy and Enthalpy. 2 hours</b> <b>Numerical exercises: Internal energy and Enthalpy. 2 hours</b></p> <p>"The machines and Technical Equipments" , BUSINESS COLLEGE Pristina, Xhevat Berisha, Prishtina, 2011.</p> <p>"Termoteknika", University of Tirana, I.Demneri, A.Shtjefni, R.Karapici, Tirana, 2003.</p> <p>"Summary of Duties From Thermodynamics", Author Group, FME, Pristina, 1995.</p>
<i>Twelfth Week:</i>	<p><b>Change of ideal gas state (Izokora <math>v = \text{const}</math>; Izobara <math>p = \text{const}</math>; Isotherma <math>T = \text{const}</math>.) 2 hours</b> <b>Numerical exercises: Izokora <math>v = \text{const}</math> ; Izobara <math>p = \text{const}</math> ; Isotherma <math>T = \text{const}</math>. 2 hours</b></p> <p>"The machines and Technical Equipments" , BUSINESS COLLEGE Pristina, Xhevat Berisha, Prishtina, 2011.</p> <p>"Termoteknika", University of Tirana, I.Demneri, A.Shtjefni, R.Karapici, Tirana, 2003.</p> <p>"Summary of Duties From Thermodynamics", Author Group, FME, Pristina, 1995.</p>

<p><i>Thirteenth Week:</i></p>	<p><b>Change the ideal gas state (Izoentropa <math>s = \text{const}</math>; Politropa <math>n = \text{const}</math>). 2 hours</b>  <b>Numerical exercises: (Izoentropa <math>s = \text{const}</math>; Politropa <math>n = \text{const}</math>). 2 hours</b>          "The machines and Technical Equipments" ,          BUSINESS COLLEGE Pristina, Xhevat Berisha,          Prishtina, 2011.</p> <p>"Termoteknika", University of Tirana, I.Demneri,          A.Shtjefni, R.Karapici, Tirana, 2003.</p> <p>"Summary of Duties From Thermodynamics",          Author Group, FME, Pristina, 1995.</p>
<p><i>Fourteenth Week:</i></p>	<p><b>Second Law of Thermodynamics (Circular Cycles, Carnot Cycle and Entropy). 2 hours</b>  <b>Numerical exercises: Circular cycles, Carnot Cycle and Entropy. 2 hours</b>          "The machines and Technical Equipments" ,          BUSINESS COLLEGE Pristina, Xhevat Berisha,          Prishtina, 2011.</p> <p>"Termoteknika", University of Tirana, I.Demneri,          A.Shtjefni, R.Karapici, Tirana, 2003.</p> <p>"Summary of Duties From Thermodynamics",          Author Group, FME, Pristina, 1995.</p>
<p><i>Fifteen week:</i></p>	<p><b>The Thermal Machines: The Compressors. 2 hours</b>  <b>Homework (Numerical Exercises: The Compressors). 2 hours</b>  <b>The second test (II) - Preliminary assessment, 2 hours</b>          "The machines and Technical Equipments" ,          BUSINESS COLLEGE Pristina, Xhevat Berisha,          Prishtina, 2011.</p> <p>"Termoteknika", University of Tirana, I.Demneri,          A.Shtjefni, R.Karapici, Tirana, 2003.</p> <p>"Summary of Duties From Thermodynamics",          Author Group, FME, Pristina, 1995.</p>
<p><b>Academic Policies and Rules of Conduct:</b></p>	

- Regular attendance, keeping calm and active engagement in dialogue during lectures and exercises is compulsory.

Students also :

- They are obliged to regularly follow lectures and exercises.
- They are obliged to come on time in the classroom and are not allowed to leave the classroom without reason
- They are obliged to enter lectures and exercises after starting exercises and lectures.
- They are free to ask questions and participate in any activity.
- They are obliged to keep quiet and to engage actively in dialogue in lectures.
- They are obliged to participate actively in seminars, projects, case studies in practice.
- They are obliged to participate actively in individual and group work in case studies.
- They are obliged to participate in Fairs, Enterprises, factories and Institutes equipped with labs of these fields is indispensable.
- They are obliged to disconnect cell phones during of the lessons and examinations.
- **COPYING** and any other form of cheating on exams is not allowed.

#### **The Assessment**

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| <ul style="list-style-type: none"> <li>• <b>Over 50% passing</b></li> <li>• <b>Up to 50% non-passing</b></li> </ul> | <ul style="list-style-type: none"> <li>• 51 - 60: 6 (six)</li> <li>• 61 - 70: 7 (seven)</li> <li>• 71 - 80: 8 (eight)</li> <li>• 81 - 90: 9 (nine)</li> <li>• 91 - 100: 10 (ten)</li> </ul> |
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