

## Course title : Applied Mathematics

Course Basic Information			
<b>Academic Unit:</b>	Faculty of Civil Engineering		
<b>Course title:</b>	Applied Mathematics		
<b>Level:</b>	Master		
<b>Course Status:</b>	Elective		
<b>Year of Study:</b>	Year 1, Semester 1		
<b>Number of Classes per Week:</b>	2+2		
<b>ECTS Credits:</b>	6 ECTS		
<b>Time /Location:</b>	According to the Timetable		
<b>Teacher:</b>	Prof.Dr. Abdullah Zejnnullahu		
<b>Contact Details:</b>	abdullah.zejnnullahu@uni-pr.edu + 377 44 276 292		
<b>Course Description:</b>	This course includes statistic, kinematic, dynamic of particles, vectors, plane motion.		
<b>Course Goals:</b>	To achieve theoretical and practical knowledge in applied mathematics.		
<b>Expected Learning Outcomes:</b>	<p>Students should be able to demonstrate that they can:</p> <ul style="list-style-type: none"> <li>- apply their knowledge of relevant mathematical techniques in a variety of contexts;</li> <li>- construct rigorous mathematical arguments through an appropriate use of precise statements, logical deduction and by manipulation of mathematical expressions;</li> <li>- evaluate mathematical models, including an appreciation of the assumptions made, and interpret, justify and present the results from a mathematical analysis in a form relevant to the original problem;</li> <li>- Communicate mathematical ideas and methods, including the use of appropriate mathematical notation, terminology, conventions and diagrams, in a clear, logical and well-structured presentation.</li> </ul>		
Student Workload (should be in compliance with student's Learning Outcomes)			
Activity	Hours	Day/ Week	Total
Lectures	2	15	30
Theory/ Lab Work/Exercises	2	15	30
Practical Work	1	10	10
Consultations with the teacher	5	1	5
Field Work	1	5	5
Test, seminar paper	1	15	15
Homework	1	15	15
Self-study (library or home)	1	10	10
Preparation for final exam	1	15	15

Assessment time (test, quiz, final exam)			
Projects, presentations, etc.	1	15	15
<b>Total</b>			<b>150</b>

<b>Teaching Methods:</b>	<ul style="list-style-type: none"> <li>- <i>Lecture</i></li> <li>- <i>Discussion during lectures</i></li> <li>- <i>Exercises</i></li> <li>- <i>Work in group</i></li> </ul>
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<b>Assessment Methods:</b>	<p>In evaluation, the percentage of the attendance of each partial evaluation in the final evaluation must be determined. One of the ways of evaluation would be:</p> <p>First Evaluation: 15%</p> <p>Second Evaluation: 15%</p> <p>Homework or other engagement: 10%</p> <p>Attendance 5%</p> <p>Final Exam 55%</p> <p>Total 100%</p>
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<b>Primary Literature:</b>	<ol style="list-style-type: none"> <li>1) Introduction to Applied Mathematics by Strang, Gilbert, 1986</li> <li>2) Applied Mathematics by Phagan, R. Jesse, 2010</li> </ol>
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<b>Additional Literature:</b>	<ol style="list-style-type: none"> <li>3) Applied Mathematics by Logan, J. David, 2013</li> </ol>
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**Designed teaching plan**

<b>Week</b>	<b>Title of the Lecture</b>
<b>Week 1:</b>	Coplanar forces acting at a point
<b>Week 2:</b>	Friction, balancing limited, and the angle of friction coefficient. Elastic strings and resources: Hooke's Law
<b>Week 3:</b>	Principles of the moment. Coplanar forces acting on a rigid body
<b>Week 4:</b>	Reducing system to a double coplanar forces or to a force and a double
<b>Week 5:</b>	Center of measures: a) a system of particles b) a uniform body, including the use of integration, c) components simply troops
<b>Week 6:</b>	Displacement, velocity and acceleration of a particle that moves in a straight line.
<b>Week 7:</b>	Simple harmonic motion
<b>Week 8:</b>	Newton's laws of motion, measure and strength.
<b>Week 9:</b>	Principles of mechanical energy storage
<b>Week 10:</b>	Impulse and momentum. Conservation moment in one dimension. Direct Impact elastic. Newton's Law of Return.
<b>Week 11:</b>	Simple differentiation and integration of a vector about a scalar variable
<b>Week 12:</b>	Speed and acceleration as a derivative of a vector position. Momentum and force vector.
<b>Week 13:</b>	Relative velocity in two dimensions. Position and vectors of a point relative to another points.

<b>Week 14:</b>	Angular velocity, angular acceleration constant. In a horizontal motion about the same speed.
<b>Week 15:</b>	Simple problems in shells.

### Academic Policies and Code of Conduct

*We start and finish class on time.*

*Tools used during class must be cleaned and stored away at the end of class.*

*Mobile/smart phones, and other electronic devices (e.g. iPods) must be turned off (or on vibrate) and hidden from view during class time.*

*Laptop and tablet computers are allowed for quiet use only; other activities such as checking personal e-mail or browsing the Internet are prohibited.*

**Note | If a student has more than 3 class assignments evaluated below 50% he/she loses the right on taking the final exam. Evaluation is done from 0-100 %.**