

Course Unit Descriptor

<b>Study Programme:</b> Master academic studies of forensic		
<b>Course Unit Title:</b> Motor vehicle's powertrain expertise		
<b>Course Unit Code:</b> SF-03		
<b>Name of Lecturer(s):</b> Assistant Professor Dragan Ružić, Associate Professor Jovan Dorić		
<b>Type and Level of Studies:</b> Master Academic Degree		
<b>Course Status (compulsory/elective):</b> Elective		
<b>Semester (winter/summer):</b> Summer		
<b>Language of instruction:</b> English		
<b>Mode of course unit delivery (face-to-face/distance learning):</b> Face-to-face		
<b>Number of ECTS Allocated:</b> 6		
<b>Prerequisites:</b> None		
<b>Course Aims:</b> Acquiring relevant and extended theoretical and practical knowledge of the motor vehicle's powertrain with the purpose of exploitation, overhaul and failure expertise, especially in term of regulations.		
<b>Learning Outcomes:</b> After acquiring knowledge, the student is able to: <ol style="list-style-type: none"> <li>1. performs and manages the motor vehicle's powertrain expertise;</li> <li>2. collects, analyze and interprets relevant technical information and competently make conclusions about important facts for the judicial processes;</li> <li>3. Apply acquired knowledge about the exploitative aspects of modern systems, materials, and processes in motor vehicle's powertrain and general and modern techniques inspection, measurement and testing of powertrain components and systems.</li> </ol>		
<b>Syllabus:</b> <i>Theory</i> Definitions and basic terms in the area of internal combustion engine. Description of the internal combustion engine's systems and its main parts. Heat balance. Forming of air-fuel mixture and combustion process in Otto and Diesel engines. Normal and abnormal combustion. Internal combustion engine diagnostic. Basics of tribology and tribological systems. Characteristics of tribological surfaces. Friction. Lubrication theories. Surface wear and damage: definitions and classifications. Mechanical wear and other wear types and damages of the material surfaces. Lubricants, oils, grease, motor fuels and other technical fluids. Diagnostics, testing and defects of the powertrain. The cause-and-effect analysis in some characteristic failures and damages. <i>Practice</i> Laboratory exercises: Examples of diagnostics, testing and defects of the internal combustion engines; Internal combustion engine parts inspection.		
<b>Required Reading:</b> <ol style="list-style-type: none"> <li>1. Stojić B., Poznanović N., Ružić D., Dorić J., Drumska vozila, FTN Novi Sad, 2014.</li> <li>2. Ružić D. ., Eksploatacija, održavanje i remont, Mikroknjiga Beograd, 2014.</li> <li>3. Dorić J., Ružić D., Motori SUS u teoriji i praksi, FTN Novi Sad, 2016.</li> </ol>		
<b>Weekly Contact Hours:</b> 5(75)	<b>Lectures:</b> 3(45)	<b>Practical work:</b> 2(30)

**Teaching Methods:**

Lectures, experimental exercises and consultations.

**Knowledge Assessment (maximum of 100 points):**

<b>Pre-exam obligations</b>	points	<b>Final exam</b>	points
Active class participation	10	written exam	30
Practical work	10	oral exam	20
Seminar(s)	20	practical exam	10

The methods of knowledge assessment may differ; the table presents only some of the options: written exam, oral exam, project presentation, seminars, etc.