Course code: ……………… Course item: ……………

1. INFORMATION ABOUT THE

COURSE A. Basic information

Course title	fatigue life in machine design
Field of study	mechanical engineering
Cycle	*first cycle*
Study profile	*academic*
Study mode	*full-time*
Specialisation	*construction of machines and devices*
Unit responsible for the field of study	*Faculty of Mechanical Engineering*
Lecturer	*Robert Sołtysiak*
Introductory courses	*Mathematics, Physics, Machine design, Mechanics*
Prerequisites	*basic knowledge of mathematics, physics, engineering graphics, materials science, mechanics*

B. Semester/ weekly timetable

Semester	Lectures	Classes	Laboratories	Project classes	Seminars	Fieldwork	ECTS credits
winter /summer	15	15					2

C. Assumed outcomes and aims - aims bind the course programme with the study programme and are referred to in learning outcomes point 2

2. LEARNING OUTCOMES (acc. to National Qualifications Framework)

No.	Description of learning outcomes	Reference to learning outcomes for the field of study	Reference to learning outcomes for the area of study
KNOWLEDGE			
K1	Student has knowledge of technical mechanics, material strength and fluid mechanics	MBM1_W04	T1A_W03 T1A_W07
K2	Student has knowledge of construction and engineering graphics	MBM1_W05	T1A_W03 T1A_W04 T1A_W07
K3	Student has knowledge of computational methods in machine construction	MBM1_W44	T1A_W04 T1A_W06 T1A_W07
SKILLS			
S1	Students is able to obtain information from literature, databases, catalogs, standards and patents; is able to integrate the information obtained, interpret it, as well as draw conclusions and formulate and substantiate opinions	MBM1_U01	T1A_U01
S2	student is able to use computational methods in machine construction	MBM1_U44	T1A_U01 T1A_U07
SOCIAL COMPETENCES			
SC1	student is aware of the importance and understands the non-technical aspects and effects of the engineer-	MBM1_K02	T1A_K02

	mechanic, including its impact on the environment, and the associated responsibility for decisions		
SC2	student is able to support other participants in the process of creating new products with knowledge about the methodology of implementing the design and construction process	MBM1_K43	T1A_K01 T1A_K07

3. TEACHING METHODS

multimedia lecture, presentation, discussion, case study,

1. METHODS OF EXAMINATION

oral exam, written exam or test, (when – at the end of the lecture , how many times - once)

2. COURSE CONTENT

Specify the content separately for each type of classes in accordance with point I.B.	introduction: basic definitions, examples of structures exposed to fatigue, examples of disasters associated with the process of material fatigue, description of cyclic loading; impact of various factors on fatigue life; description of basic fatigue characteristics; smith chart and its practical application; cycle-counting methods for fatigue analysis; calculation methods of fatigue life.

3. VALIDATION OF LEARNING OUTCOMES

(Each learning outcome from the list requires validation methods to ensure that it was achieved by a student.)

Learning outcome	Form of assessment (for example:)					
	Oral examination	Written examination	Colloquium	Project	Report	…………
K1, K2, K3		x				
S1, S2		x				
SC1, SC2		x				

4. LITERATURE

Basic literature	FITNET Fitness-for-Service PROCEDURE - FINAL DRAFT MK7, 2006; EN 1993-1-9 Eurocode 3: Design of steel structures - Part 1-9: Fatigue; Fatigue Testing and Analysis: Theory and Practice, Lee, Yung-Li; Elsevier Butterworth-Heinemann, 2005; Fatigue of structures and materials. Jaap Schijve, Springer Netherlands 2009
Supplementary literature	Kocańda S., Szala J., 1997.Podstawy obliczeń zmęczeniowych. PWN Warszawa

5. TOTAL STUDENT WORKLOAD REQUIRED TO ACHIEVE EXPECTED LEARNING OUTCOMES EXPRESSED IN TIME AND ECTS CREDITS

Student's activity		Student workload– number of hours (for example:)
Classes conducted under a direct supervision of an academic teacher or other persons responsible for classes	Participation in classes indicated in point 1B	15
	Supervision hours	1
Student's own work	Preparation for classes	2
	Reading assignments	4
	Other (preparation for exams, tests, carrying out a project etc)	8
Total student workload		30
	Final number of ECTS credits	2