MATHEMATICAL METHODS IN ENGINEERING
CONDITIONS FOR THE FINAL CLASSIFICATION

CLASSIFICATION) (POINTS)			TOPICS OF THE EXAM	
Projects	P1	15	T1	Algorithms and programming in MATLAB
	P2	15		Modelling in the SIMULINK environment
	P3	15		Basic operations of symbolic mathematics
Exam	T1	15	T2	Principles and algorithmic tools of linear algebra
	T2	20		Data approximation
	T3	20	T3	Principles and algorithmic tools of solution of nonlinear equations
				Interpolation, derivation, integration
				Methods for solution and modelling of ordinary differential equations

Examination: The exam will be written and verbal only without using computers and any other tools (materials and informations). The set of questions will be randomly generated by computer.

EXAM CLASSIFICATION						
Points	91-100	81-90	71-80	61-70	51-60	0-50
Classification	A	B	C	D	E	F

EXAM DATES	
Friday 18.5.2007	Lecture room A40: 11:00 o'clock
Wednesday 23.5.2007	Lecture room A40: 8:30 o'clock
Wednesday 13.6.2007	Lecture room A40: 8:30 o'clock

Exam registration: Through the web pages: http://student.vscht.cz, number of seats is restricted on 20

SAMPLE TEST

MATHEMATICAL METHODS IN ENGINEERING		
Name and Surname:		Date:

1. Create a function subprogram which will use structure IF-ELSE-END to determine value of the function $f(x)$ defined below

$$f(x) = \begin{cases} x^2 + 5 & \text{for } x < 5 \\ 10\,x & \text{for } x \geq 5 \end{cases}$$

2. Derive the equation for the approximation of values $\{x_i, y_i\}_{i=1}^{N}$ by function $f(x) = c_1\,x^2$ and write section of the program for the determination of the constant c_1

3. Derive the principal for the solution of differential equation $y' = f(x,y)$ for $y(x_1) = y_1$ by Euler method and apply it for the solution of equation $y' + 5\,y = 1$ with condition $y(x_1) = 1$ and write the corresponding section of the program