

Name of the subject: Programming II	NEPTUN code: KMEPR6ABNE	Weekly hours: 5 2 lec + 0 gs + 1 lab	Credit: 4 Req: Assignment
Subject leader: Dr. András Boráros-Bakucz		Prerequisites: KMXIA5ABNE Informatics I.	
Description of the subject:			
<p>Phenomenon of file. Low level file handling and their functions, sample programmes. High level file handling and their functions, sample programmes. Interfaces between the different levels. Dynamic memory handling, and its functions, thumb rules and usage. AVR8 microcontrollers architecture and basics. Memory and IO structure, interrupt handling, special peripherals. Assembly instruction set. Assembly row format. Compiling procedure. Simple algorithms in assembly. IT handling in assembly. C programming in assembly. Comparison the developing procedure between assembly and C environment. Development of various modules. IT handling in C. UART handling and interface writing. Time base in C. Debug and testing. Finite state machines in AVR8.</p> <p>Laboratory: Low and high level file handling. Complex programming project in C language on PC. AVR studio IDE usage. Compiling, debugging and other possibilities. Preparing start file. Often used include files. Port handling in assembly. LED and button handling. Port initialization. Various type of assembly instructions and their features. Status register. Programming structure in assembly. C programmes under AVR8. Functins in AVR8 C, special features of AVR8 C, practical considerations. I/O handling and configuration, interrupt handling and main features. Time base in C with interrupt, USART handling in C and practical consideration of interfaces. Final state machines in AVR 8 under C. Trivial threads in AVR8 C. Practical considertions and thumb rules. Debugging of parallel programmes.</p>			
Literature:			
Dan Gookin:C For Dummies® 2nd Edition, Wiley Publishing ISBN: 0-7645-7068-4			
William H. Press , Saul A. Teukolsky, Saul A. Teukolsky, Brian P. Flannery: Numerical Recipes in C , CAMBRIDGE UNIVERSITY PRESS ISBN 521 43108			
Peter Prinz, Ula Kirch/Prinz: C Pocket reference, O'Reilly ISBN 0-596-00436-2			
Remarks:			