

<b>Faculty</b>	<b>Electrical Engineering and Computer Science</b>
Course Title	Microcontrollers and Applications
Number of ECTS credits	6 ECTS
Hours per week (SWS)	4 lecture and laboratory + 1 supplementary exercise
Semester	Bachelor / summer term
Course objective	is to design, to build and to program a hardware device (or gadget) that has a tactile hardware interface (with real buttons, real displays...)
Prerequisites	<p>Participants should</p> <ul style="list-style-type: none"> <li>- be <i>interested in "making" something with hardware</i></li> <li>- be really <i>willing to cope with non-software problems</i> (like tracing down errors in connections)</li> <li>- <i>be skilled with a C-like language</i> (like, e.g., Java)</li> <li>- <i>know how to write a target specification</i> ("Pflichtenheft")</li> </ul>
Recommended reading	---
Teaching methods	lecture, project oriented original development (with individual or with team work)
Assessment methods	documentation and product (device or gadget)
Language of instruction	English
Name of lecturer	Dr. Christoph Flores
Email	Christoph.Flores@lba.hs-bremen.de
Course content	<ul style="list-style-type: none"> <li>- finding and planning a microcontroller project</li> <li>- making microcontroller gadgets (soldering, using breadboards, testing)</li> <li>- programming microcontrollers (IDEs, libraries, design considerations for limited hardware, hardware-software interface, concurrent processing, interrupts, state machines)</li> <li>- discussing your project ideas</li> <li>- supplementary topics with relation to projects, like "wifi", "audio", "sd-cards", "cameras", "sensors" and ongoing assistance during lab sessions, e.g. for testing in a project's specific context, for acquiring hardware, etc.</li> </ul> <p>During the first few sessions project ideas will be discussed, up to the point where there is an agreed-upon target specification for every project. During the remaining sessions projects will be built and programmed on the basis of this target specification.</p>