

## **Abstract**

This thesis is a research paper into the possibilities of optimizing the course 'learning to program' within a maritime education, more specifically the automation seminar in the master at the AMA. Three maritime-inspired Arduino projects and setups will be created. These can be used as a learning platform, where students can learn to understand the programming language and the various components in an attractive way. And gain insight into the importance of 'learning to program' within a maritime education.

After a brief introduction outlining the structure of the thesis, an outline of the origin and meaning of the STCW code follows. According to that STCW code, 'learning to program' is an optional subject within maritime training and therefore leaves room for interpretation. We will look at how this is taught at the AMA in the subject of Electronics (Part 2). But before we do that, we explain microcontrollers and Arduino with all its possibilities.

Finally, using maritime articles as a starting point, three Arduino projects are presented. In these, the Arduino microcontroller and various components are used, such as a gas sensor, three-axis gyro sensor and an ultrasonic sensor. The exercises are built up each time in the same way. After an explanation of the various components, the application follows.