



**GUIDANCE NOTE**  
**SAMSA Code: Engineer**  
**Electronics**

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Approved by  
Syllabus Committee:  
13 May 2015

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# **OPERATIONS – SEAFARER CERTIFICATION**

## **GUIDANCE NOTE**

### **SA MARITIME QUALIFICATIONS CODE**

#### **Engineer: Electronics**

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COLUMN 1	COLUMN 2	COLUMN 3	COLUMN 4
COMPETENCE	KNOWLEDGE, UNDERSTANDING AND PROFICIENCY	METHODS FOR DEMONSTRATING COMPETENCE	CRITERIA FOR EVALUATING COMPETENCE
<b>MODULE 1</b>			
1. Electronics & Power Electronics	1.1 Explains integrated circuits. 1.2 Explains electronic fault diagnosis on board ship. 1.3 Explains the basic concepts of; 1.3.1 Open and closed loops. 1.3.2 Process control. 1.3.2.1 Explains the operation and use of sensors and transmitters in ship board systems. 1.3.2.2 Discusses controllers and Basic Control Theory 1.3.2.3 Identifies the operation and use of Final Control Elements 1.3.2.4 Control Loop Analysis 1.3.2.5 Explains the operation and use of governors	Examination and assessment of evident obtained from theoretical instruction as associated laboratory or workshop practical training.	Demonstrate a clear theoretical and practical application of electricity
2. Digital Electronics	2.1 Basic Logic gates and derived Logic gates 2.2 Memories ,RAM, ROM, PROM,EPROM, UVPROM 2.3 Microprocessors, principles of operation, input/output functions, application in marine control systems, programs, alteration of values. 2.4 Typical input and output devices-switches, relays, solenoids, LEDs, radio frequency devices and sensors for data such as temperature, humidity, light level etc. 2.5 Analog-to digital converter and Digital to Analog converter ADC & DAC 2.6 Description and use of General Purpose Input/output pins		