1. Module details

Module name

VCR Fault Finding

Module duration

It is expected that students with the appropriate entry knowledge and skills will successfully complete this module in 36 - 40 hours.

Module code

NUE904

Discipline code

0703230

2. Module purpose

This module provides the student with the knowledge and skills to safely diagnose and repair typical faults to component level in the electrical and mechanical sections of modern VHS VCRs.

3. Prerequisites

NUE903 VCR Advanced.
NE06 Regulated Power Supplies.

4. Relationship to competency standards

This module provides some of the knowledge and skills underpinning competence in the following standards: Metals and Engineering Industry National Competency Standards, Units 18.45A, 18.56A, 18.65A. National Electrotechnology Industry Standards, Units NES205, NES302, NES303, NES305, NES306, NES402, NES403, NES406, NES407.

5. Content

Mechanical faults

Components
Identification
Location

VCR test equipment
Waveform measurement
Voltage measurement

Safe working practice

VCR faults
Typical faults
Analysis of symptoms
Repairs
Luminance processing faults
Chrominance processing faults
System control faults
Servo system faults
Timer and display faults
Power supply faults
Sound faults
RF faults

6. Assessment strategy

Assessment methods

Assessment should be progressive reflecting a holistic approach to ensure the module purpose is met. To assist in ensuring validity, reliability and fairness assessment instruments should include practical exercises, assignments and written tests consisting of a number of item types, such as multiple choice, short answer and problem solving.

Conditions of assessment

Normally learning and assessment will take place in a classroom / laboratory environment.

7. Learning outcome details

Learning outcome 1

Demonstrate the knowledge and skills necessary to locate faulty components in the mechanical section of a typical VCR.

Assessment criteria

1.1 Using the service manual, interpret the mechanical layouts of a typical VCR.

1.2 List typical faults that may be found in the mechanical section.

1.3 Describe the diagnostic procedures used to identify faulty components in the mechanical section.

1.4 Identify the likely components causing typical faults in a mechanical section.

1.5 Demonstrate the skills and knowledge necessary to safely replace faulty components in the mechanical section.

Learning outcome 2

Demonstrate the knowledge and skills necessary to locate faulty components in the luminance section of a typical VCR.

Assessment criteria

2.1 Describe the signal processing of the luminance section given a circuit diagram.

2.2 List typical faults that may be found in the luminance section.

2.3 Describe the diagnostic procedures used to identify faulty components in the luminance section.

	2.4	Identify the likely components causing typical faults in a luminance section.
	2.5	Demonstrate the skills and knowledge necessary to safely replace faulty components in the luminance section.
Learning outcome 3	**Demonstrate the knowledge and skills necessary to locate faulty components in the chroma section of a typical VCR.**	
Assessment criteria	3.1	Describe the signal processing of the chroma section given a circuit diagram.
	3.2	List typical faults that may be found in the chroma section.
	3.3	Describe the diagnostic procedures used to identify faulty components in the chroma section.
	3.4	Identify the likely components causing typical faults in a chroma section.
	3.5	Demonstrate the skills and knowledge necessary to safely replace faulty components in the chroma section.
Learning outcome 4	**Demonstrate the knowledge and skills necessary to locate faulty components to the servo control section of a typical VCR.**	
Assessment criteria	4.1	Describe operation of the servo control section given a circuit diagram.
	4.2	List typical faults they may be found in the servo control section.
	4.3	Describe the diagnostic procedures used to identify faulty components in the servo control section.
	4.4	Identify the likely components causing typical faults in a servo control section.
	4.5	Demonstrate the skills and knowledge necessary to safely replace faulty components in the servo control section.

Learning outcome 5	**Demonstrate the knowledge and skills necessary to locate faulty components in the system control section of a typical VCR.**	
Assessment criteria	5.1	Describe operation of the system control section given a circuit diagram.
	5.2	List typical faults that may be found in the system control section.
	5.3	Describe the diagnostic procedures used to identify faulty components in the system control section.
	5.4	Identify the likely components causing typical faults in a system control section.
	5.5	Demonstrate the skills and knowledge necessary to safely replace faulty components in the system control section.
Learning outcome 6	**Demonstrate the knowledge and skills necessary to locate faulty components in the timer and display control section of a typical VCR.**	
Assessment criteria	6.1	Describe the operation of the timer and display section given a circuit diagram.
	6.2	List typical faults that may be found in the timer and display section.
	6.3	Describe the diagnostic procedures used to identify faulty components in the timer and display section.
	6.4	Identify the likely components causing typical faults in a timer and display section.
	6.5	Demonstrate the skills and knowledge necessary to safely replace faulty components in the timer and display section.
Learning outcome 7	**Demonstrate the knowledge and skills necessary to locate faulty components in the power supply section of a typical VCR.**	
Assessment criteria	7.1	Describe the operation of the power supply section given a circuit diagram.
	7.2	List typical faults that may be found in the power supply control section.

	7.3	Describe the diagnostic procedures used to identify faulty components in the power supply section.
	7.4	Identify the likely components causing typical faults in a power supply section.
	7.5	Demonstrate the skills and knowledge necessary to safely replace faulty components in the power supply section.
Learning outcome 8	**Demonstrate the knowledge and skills necessary to locate faulty components in the sound section of a typical VCR.**	
Assessment criteria	8.1	Describe the operation of the sound section given a circuit diagram.
	8.2	List typical faults that may be found in the sound control section.
	8.3	Describe the diagnostic procedures used to identify faulty components in the sound section.
	8.4	Identify the likely components causing typical faults in a sound section.
	8.5	Demonstrate the skills and knowledge necessary to safely replace faulty components in the sound section.
Learning outcome 9	**Demonstrate the knowledge and skills necessary to locate faulty components in the RF section of a typical VCR.**	
Assessment criteria	9.1	Describe the signal processing of the RF section given a circuit diagram.
	9.2	List typical faults that may be found in the faulty components in the RF section.
	9.3	Identify the likely components causing typical faults in a RF section.
	9.4	Demonstrate the skills and knowledge necessary to safely replace faulty components in the RF section.

8. Delivery of the module

Delivery strategy

Delivery strategies must be suitable for learning both theoretical and practical aspects described in the module purpose. It is considered that the most effective way to achieve this is by the integration of theory and practice where students learn by experimentation and through research and laboratory reports. It is recommended that learning and assessment be facilitated in a holistic manner which may require a learning outcome sequence other than that indicated in the module.

Resource requirements

Resources should be sufficient for students to carry out experiments on an individual basis. This will require a range of experimental circuit devices and measuring instruments.

Useful references include:

Schonbeck R 1996, *Electronic Video Systems*
Prentice Hall, Englewood Cliffs
ISBN 0-02-408013-6

Trundle E 1996, *Newnes Guide to TV and Video Technology*
Butterworth-Weinermann Oxford
ISBN 07506 23748

Botto D 1992, *A Basic Guide to Colour TV and VCRs*
Electronics Australia, Federal Publishing, Alexandria

Occupational health and safety requirements

A safe and healthy environment will be provided for students and teachers as well as safe procedures with regard to learning / teaching activities.