



Institiúid Teicneolaíochta Chorcaí  
Cork Institute of Technology

## ELTR6013: Analogue Electronics 3

### Module Details

<b>Short Title:</b>	Analogue Electronics 3 <b>APPROVED</b>		
<b>Full Title:</b>	Analogue Electronics 3		
<b>Module Id:</b>	2847		
<b>Official Code:</b>	ELTR6013	<b>NFQ Level:</b>	6
		<b>ECTS Credits:</b>	5

<b>Coordinator:</b>	JOSEPH CONNELL
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<b>Description:</b>	This Module explores operational amplifiers, Bi-Polar transistor and FET amplifiers. Oscillator and multivibrator circuits are also studied. Power amplifiers are also studied as is Negative Feedback.
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### Learning Outcomes:

*On successful completion of this module the learner will be able to...*

1. Construct and assess operational and transistor amplifier circuits.
2. Describe the effects of negative feedback on amplifiers performance.
3. Outline the operating principles of oscillators and multivibrators, and design circuits to give particular outputs.
4. Classify and characterise power amplifiers.

### Pre-requisite learning

#### Module Recommendations

*This is prior learning (or a practical skill) that is strongly recommended before enrolment in this module. You may enrol in this module if you have not acquired the recommended learning but you will have considerable difficulty in passing (i.e. achieving the learning outcomes of) the module. While the prior learning is expressed as named CIT module(s) it also allows for learning (in another module or modules) which is equivalent to the learning specified in the named module(s).*

No recommendations listed

#### Incompatible Modules

*These are modules which have learning outcomes that are too similar to the learning outcomes of this module. You may not earn additional credit for the same learning and therefore you may not enrol in this module if you have successfully completed any modules in the incompatible list.*

No incompatible modules listed

#### Module Requirements

*This is prior learning (or a practical skill) that is mandatory before enrolment in this module is allowed. You may not enrol on this module if you have not acquired the learning specified in this section.*

No requirements listed



## Module Content &amp; Assessment

## Indicative Content

- **Amplifiers**

Operational amplifiers, properties, applications and calculations.

- **Negative Feedback**

Definition of Negative Feedback, effects of Negative Feedback on amplifiers performance. Numerical calculations.

- **Oscillators and Waveform Generators**

The operation of sinusoidal oscillators and astable multivibrators and perform numerical calculations to determine the frequency of operation, clock circuits, 555 timer, Mark:Space ratio.

- **Power Amplifiers**

Outline of the various classes of large signal amplification. Explain the operation of a number of Power amplifiers and perform numerical calculations.

- **Power supplies**

Power source selection and specification. Linear regulators.

- **Laboratory Programme**

Operational amplifier circuits. Construct oscillator and multivibrator circuits and examine them. Examine the operation of various Power Amplifiers.

Assessment Breakdown	%
Course Work	40%
End of Semester Formal Examination	60%

	Outcome addressed	% of total	Assessment Date
<b>Formal End-of-Semester Examination</b>	1,2,3,4	60%	Semester End

Coursework Breakdown				
Type	Description	Outcome addressed	% of total	Assessment Date
Open-book Examination	Assessment of lecture material covered during weeks 1 to 6	1,2,3	10	Week 7
Practical/Skills Evaluation	Continuous assessment of Laboratory Programme	1,2,3,4	30	Every Week

**The institute reserves the right to alter the nature and timings of assessment**



## Module Workload &amp; Resources

Workload		Full-time mode			
Type	Description	Hours	Frequency	Average Weekly Learner Workload	
Lecture	Class-based instruction and discussion	3	Every Week	3.00	
Lab	Laboratory-based exercises and demonstrations	2	Every Week	2.00	
Independent & Directed Learning (Non-contact)	Further recommended study	2	Every Week	2.00	
Total Weekly Learner Workload				7.00	
Total Weekly Contact Hours				5.00	

Workload		Part-time mode			
Type	Description	Hours	Frequency	Average Weekly Learner Workload	
Lecture	Class-based instruction and discussion	2	Every Week	2.00	
Lab	Laboratory-based exercises and demonstrations	1	Every Week	1.00	
Independent & Directed Learning (Non-contact)	Further recommended study	4	Every Week	4.00	
Total Weekly Learner Workload				7.00	

## Resources

## Recommended Book Resources

• Thomas Floyd, *Electronic Devices*, Prentice-Hall