

## MODULE DESCRIPTOR

<b>MODULE TITLE</b>	ALGEBRAIC STRUCTURES		
<b>MODULE CODE</b>	MA2811 (L5)	<b>CREDIT VALUE</b>	20 CREDITS (10 ECTS)
<b>CAMPUS</b>	UCLAN CYPRUS		
<b>SCHOOL</b>	SCHOOL OF SCIENCE		

### MODULE AIMS

To introduce some of the most important structures in modern algebra.

### MODULE CONTENT

**Extensions of  $\mathbb{Q}$ :** Subfields of  $\mathbb{C}$ , extensions of  $\mathbb{Q}$ , algebraic over  $\mathbb{Q}$ , minimum polynomials and irreducibility over  $\mathbb{Q}$ , extensions of  $\mathbb{Q}$  as vector spaces, structure of simple algebraic extensions of  $\mathbb{Q}$ .

**Groups:** subgroups, generating set, cyclic groups, normal subgroups, factor groups, isomorphisms, direct products, classifying groups

**Rings:** Subrings, ideals, factor rings (including modulo  $n$ ), isomorphisms.

### INTENDED LEARNING OUTCOMES

On successful completion of this module a student will be able to:	
1.	Prove given sets are certain algebraic structures such as a group, ring, field.
2.	Prove properties about given algebraic structures.
3.	Determine if two given structures are isomorphic.
4.	Determine if a given set is a basis.
5.	Evaluate minimum polynomials.

### TEACHING METHODS

The direct contact will consist of lectures. During these lectures theory will be introduced and developed. Examples will be demonstrated throughout the module during these lectures. The lectures will also contain assisted problem solving. Regular non-assessed work sheets will be provided.

### ASSESSMENT METHODS

The module is assessed through 2 assignments and a written examination.