

# Syllabus

(References are to pertinent parts of Eccles.)

1. Mathematical statements and truth tables. (Chapters 1,2).
2. Direct proofs, contrapositive, proof by contradiction. (Chapter 3,4).
3. Mathematical induction. (Chapter 5).
4. Union, intersection, complement (Chapters 6,7).
5. Functions: Injections (1-1), surjections (onto), bijections (1-1 onto)  
(Chapters 8,9)
6. Cardinality of finite sets. (Chapters 10,11).
7. Infinite sets, power sets (sets of subsets) and binomial coefficients  
(Chapter 12,14).
8. The division theorem (Chapter 15)
9. The Euclidean algorithm and linear Diophantine equations (Chapters  
16,17,18)
10. Modular arithmetic and congruence classes (Chapters 19,20,21).
11. Prime numbers and the fundamental theorem of arithmetic (Chapters  
23,24)