

# Core Programming

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# Data Structure

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# Algorithm

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313	Content Testing – Topics 2
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339	Formal Specification Languages – Topics 2
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364	Metrics for the Requirements Model – Topics 2
374	Metrics for the Design Model – Topics 8
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376	Metrics for Source Code
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392	The Process – Topics 2
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405	Metrics for Software Quality – Topics 2
408	Integrating Metrics within the Software Process – Topics 3
409	Metrics for Small Organizations
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441	Defining a Task Network
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448	Software Risks
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462	Software Reengineering – Topics 2
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510	Object Oriented Concepts

## Pure Mathematics – 1, 2, and 3

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	<b>P1: Algebra</b>
01	Background Algebra
02	Linear Equations
03	Changing the Subject of a Formula
04	Quadratic Equations
05	Solving Quadratic Equations
06	Equations that cannot be Factorized
07	The Graphs of Quadratic Function
08	The Quadratic Formula
09	Inequalities
	<b>P2: Algebra</b>
10	Operations with Polynomials
11	Solution of Polynomial Equations
12	The Modulus Function
	<b>P3: Further Algebra</b>
13	The General Binomial Expansion
14	Review of Algebraic Functions
15	Partial Functions
16	Using Partial Functions with The Binomial Expansion
	<b>P1: Co-Ordinate Geometry</b>
17	Co-Ordinates
18	Plotting, Sketching and Drawing
19	The Gradient of a Line
20	The Distance Between Two Points
21	The Mid-Point of a Line Joining Two Points
22	The Equation of a Straight Line
23	Finding the Equation of a Line
24	The Intersection of Two Line
25	Drawing Curves
26	The Intersection of A Line and A Curve
	<b>P1: Sequences and Series</b>
27	Definitions and Notation
28	Arithmetic Progressions
29	Geometric Progressions
30	Binomial Expansions
	<b>P1: Functions</b>
31	The Language of Functions
32	Composite Functions
33	Inverse Functions
	<b>P1: Differentiation</b>
34	The gradient of a Curve
35	Finding the Gradient of a Curve
36	Finding the Gradient from First Principles
37	Differentiating by Using Standard Results
38	Using Differentiation
39	Tangents and Normals
40	Maximum and Minimum Points
41	Increasing and Decreasing Functions
42	Points of Inflection
43	The Second Derivative
44	Applications

45	The Chain Rule
	<b>P2: Differentiation</b>
46	The Product Rule
47	The Quotient Rule
48	Differentiating Natural Logarithms and Exponentials
49	Differentiating Trigonometrical Functions
50	Differentiating Functions Defined Implicitly
51	Parametric Equations
52	Parametric Differentiation
	<b>P3: Differential Equations</b>
53	Forming Differential Equations from Rates of Change
54	Solving Differential Equations
	<b>P1: Integration</b>
55	Reversing Differentiation
56	Finding the Area Under A Curve
57	Area as The Limit of A Sum
58	Areas Below the X Axis
59	The Area Between Two Curves
60	The Area Between A Curve and the Y Axis
61	The Reverse Chain Rule
62	Improper Integrals
63	Finding Volumes by Integration
	<b>P2: Integration</b>
64	Integrals Involving The Exponential Function
65	Integrals Involving The Natural Logarithm Function
66	Integrals Involving Trigonometrical Functions
67	Numerical Integration
	<b>P3: Further Integration</b>
68	Integration by Substitution
69	Integrals Involving Exponentials and Natural Logarithms
70	Integrals Involving Trigonometrical Function
71	The Use of Partial Fractions in Integration
72	Integration by Parts
73	General Integration
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74	Trigonometry Background
75	Trigonometrical Functions
76	Trigonometrical Functions for Angles of any Size
77	The sine and cosine Graphs
78	The tangent graph
79	Solving Equations using Graphs of Trigonometrical Functions
80	Circular Measure
81	The Length of An ARC of A Circle
82	The Area of A Sector of A Circle
83	Other Trigonometrical Functions
	<b>P2: Trigonometry</b>
84	Reciprocal Trigonometrical Functions
85	Compound-Angle Formulae
86	Double-Angle Formulae
87	The Forms $r\cos$ , $r\sin$
88	The General Solutions of Trigonometrical Equations
	<b>P1: Vectors</b>
89	Vectors in Two Dimensions
90	Vectors in Three Dimensions
91	Vectors Calculations

92	The Angle Between Two Vectors
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93	The Vector Equation of a Line
94	The Intersection of Two Lines
95	The Angle Between Two Lines
96	The Perpendicular Distance from A Point to a Line
97	The Vector Equation of a Plane
98	The Intersection of A Line and A Plane
99	The Distance of A Point from A Plane
100	The Angle Between A Line and A Plane
101	The Intersection of Two Planes
	<b>P2: Logarithms and Exponentials</b>
102	Logarithms
103	Exponential Functions
104	Modelling Curves
105	The Natural Logarithm Functions
106	The Exponential Function
	<b>P2: Numerical Solution of Equations</b>
107	Interval Estimation – Change-of-Sign Methods
108	Fixed-Point Iteration
	<b>P3: Complex Numbers</b>
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110	Working with Complex Numbers
111	Representing Complex Numbers Geometrically
112	Sets of Points in An Argand Diagram
113	The Modulus-Argument form of Complex Numbers
114	Sets of Points Using The Polar Form
115	Working with Complex Numbers in Polar Form
116	Complex Exponents
117	Complex Numbers and Equations