

1. Core Programming

- Programming in C – A Complete Introduction to The C Programming Language, Stephen G. Kochan
- Object-Oriented Programming with C++, E Balagurusamy

Object Oriented Programming with C++		Programming in C	
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2. Database Management System

➤ Fundamentals of Database Systems, Elmasri and Navathe

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3. Data Structure and Algorithm

- Classic Data Structures, D. Samanta
- Introduction to Algorithms, Thomas H. Cormen, Charles E. Leiserson, Ronald, Clifford

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4. Software Engineering and Maintenance

- Software Engineering: A Practitioner's Approach, Roger S. Pressman
- Software Maintenance, GPT

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186	Resources
187	Software Project Estimation
188	Decomposition Techniques
189	Empirical Estimation Models
190	Estimation for Object-Oriented Projects
191	Specialized Estimation Techniques
192	The Make/Buy Decision
193	Summary
	Project Scheduling
194	Basic Concepts
195	Project Scheduling
196	Defining a Task Set for the Software Project
197	Defining a Task Network
198	Scheduling
199	Earned Value Analysis
200	Summary
	Risk Management
201	Reactive versus Proactive Risk Strategies
202	Software Risks
203	Risk Identification
204	Risk Projection
205	Risk Refinement
206	Risk Mitigation, Monitoring, and Management
207	The RMMM Plan
208	Summary
	Maintenance and Reengineering
209	Software Maintenance
210	Software Supportability
211	Reengineering
212	Business Process Reengineering
213	Software Reengineering
214	Reverse Engineering
215	Restructuring

216	Forward Engineering
217	The Economics of Reengineering
218	Summary
	Part-5: Advanced Topics
	Software Process Improvement
219	What is SPI
220	The SPI Process
221	The CMMI
222	The People CMM
223	Other SPI Frameworks
224	SPI Return on Investment
225	SPI Trends
226	Summary
	Emerging Trends in Software Engineering
227	Technology Evolution
228	Observing Software Engineering Trends
229	Identifying 'Soft Trends'
230	Technology Directions
231	Tools-Related Trends
232	Summary
	Concluding Comments
233	The Importance of Software – Revisited
234	People and The Way They Build Systems
235	New Modes for Representing Information
236	The Long View
237	The Software Engineer's Responsibility
238	A Final Comment
	Part-6: Appendix
239	An Introduction to UML
240	Object Oriented Concepts
	SOFTWARE MAINTANANCE

5. Basic Mathematics

- Pure Mathematics 1, Sophie Goldie
- Pure Mathematics 2 and 3, Sophie Goldie

	Pure Mathematics (A-Level)
	P1: Algebra
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
	P2: Algebra
10	Operations with Polynomials
11	Solution of Polynomial Equations
12	The Modulus Function
	P3: Further Algebra
13	The General Binomial Expansion
14	Review of Algebraic Functions
15	Partial Functions
16	Using Partial Functions with The Binomial Expansion
	P1: Co-Ordinate Geometry
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
	P1: Sequences and Series
27	Definitions and Notation
28	Arithmetic Progressions
29	Geometric Progressions
30	Binomial Expansions
	P1: Functions
31	The Language of Functions
32	Composite Functions
33	Inverse Functions
	P1: Differentiation
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
	P2: Differentiation
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
	P3: Differential Equations
53	Forming Differential Equations from Rates of Change
54	Solving Differential Equations
	P1: Integration
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
	P2: Integration
64	Integrals Involving The Exponential Function
65	Integrals Involving The Natural Logarithm Function
66	Integrals Involving Trigonometrical Functions
67	Numerical Integration
	P3: Further Integration
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
	P1: Trigonometry
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
	P2: Trigonometry
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
	P1: Vectors
89	Vectors in Two Dimensions
90	Vectors in Three Dimensions
91	Vectors Calculations
92	The Angle Between Two Vectors
	P3: Vectors
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
	P2: Logarithms and Exponentials
102	Logarithms
103	Exponential Functions
104	Modelling Curves
105	The Natural Logarithm Functions
106	The Exponential Function
	P2: Numerical Solution of Equations
107	Interval Estimation – Change-of-Sign Methods
108	Fixed-Point Iteration
	P3: Complex Numbers
109	The Growth of the Number System
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

Each Day: 5 Subjects x 3 Topics = 15 Topics		
01	Programming in C	104
	Object-Oriented Programming with C++	172
02	Fundamental of Database System	190
03	Data Structure and Algorithm	92
04	Software Engineering and Maintenance	241
05	Basic Mathematics	118