Guidelines for B.Sc. (H) Computer Science Semester III

These are only guidelines and in no case to be treated as syllabus. The guidelines may be updated from time to time. Click <u>here</u> for changes that were made in September, 2008.

July 21, 2006

Chapter	Section	Reference	Weightage
	B.4, B.5 (Self Study)	[1]	
6	Complete	[1]	
7	Complete	[1]	18
8	Complete	[1]	
9	Complete	[1]	
13	Complete	[1]	
14	Complete	[1]	10
15	Complete	[1]	
16	Excluding 16.4 & 16.5	[1]	
17	Complete	[1]	18
19	Complete	[1]	
20	20.1	[1]	
21	21.1, 21.2 (upto Pg 503)	[1]	10
22	Complete (Except Proof of	[1]	15
	Theorems)		
23	Complete	[1]	
28	28.2, 28.3	[1]	4

301 Algorithms

[1] T.H. Cormen, C.E. Leiserson, R.L. Rivest, Introduction to Algorithms, Prentice Hall of India (IInd Edition)

Note : Detailed analysis of algorithms to be discussed for sorting and graph algorithms only. Prof of Graph Theory Theorems & Matrin Multiplication & Solution of Linear Equations.

302 System Software

Chapter	Reference
Ch 1 to 5,Ch 8 upto 8.1 (for lex, yacc,make) SCCS	[1]
Ch 1.3 (Self Study) Ch 2 (upto 2.3) Ch 3 (upto 3.4)	[2]
XHTML (Self Study) Ch 7 (JS Introduction to Scripting) Ch 8 (JavaS Control Statement I) Ch Ch 9 (JavaS Control Statement II) Ch 10 (JS functions) Ch 11 (JS Arrays)	[3]
Ch 12 (JS Objects) Ch (20 XML) Ch 25 (Perl & CGI)	

References:

- 1 The Unix Programming Environment. By B.W.Kernighan & R.Pike (Pub. PHI)
- 2 System S/W An Introduction to System Programming (3rd ED.) By L.L.Beck (Pub – Pearson Edu.)
- 3 Internet & WWW How to Program H.M.Deitel, P.J.Deitel & AB Goldberg (3rd Ed.) Persone.

Other books for Reference :

- I Unix Concepts and Applications by Sunita bha Das, II ed, Pub.: Tata Mc Graw Hill
- II Unix Shell Programming by : Lowell Jay Arthur & Ted Burns Pub: Galgotia 3rd Ed.

303 Algebra

Section	Reference	Theory Classes	Lab Classes	Weightage
6.1 (In monoids	1	1	1	20
defination and			(Section 2.1, idea	
illustrations			of Section 2.4 no	
only)			questions)	
6.4	1	2	1	
6.6	1	2	1 (problems to be	
			tried)	
7.1	1	2 (Definitions	1 (Examples	
		and illustrations)	from Ch 1-5 and	
			internet)	
7.2	1	Pg 95-96, Pg 98		
		(Definition 16		
		and Ex given on		
		Pg 98 & 99)		
2.7	2	1	1	
3.1	3	1		
3.2	3	1		
3.3	3		1 (Convex sets +	
			examples)	
3.4 - 3.6	3	1		
4.2, 4.3	3	2	1 (Illustrations of	
			chapter 2 and 3	
			from book 2	
			internet)	
4.4	3		1 (Illustrations	
			only)	
4.5	3	2	1	
Change of bases	3	2	1 (Illustration	
composition and			from chap 2 of	
inverse of linear			reference 2 and	
map			internet)	
6.1 (Proof of	3	1		
parallelogram,				
Bessel's, and				
Schwart'z				
inequality)				
6.2, 6.3	3	1	1	
7.1-7.5	3	1	1	
(7.5 without				
derivation)				
7.6	3		2 (Also from	
			Ref2 – Chap 3.5	
			Sec 3, Chap 2.5	
			Sec 1)	

8.1	3	2	1 (Also from	10
			Ref2 – Chap 2.6	
			Pg 74 -83, Chap	
			3.6 Pg 175 –	
			183)	
8.2	3	2	1 (Same as	
			above)	
8.3	3	1	1 (From Ref2)	
4.5	4	2	1 (Graphical	
4.6			representation of	
			partial order	
			relations and	
			lattices)	

References:

- [1] A.M. Cohen, H. Cuypers, H. Sterk, Algebra Interactive: Learning Algebra In An Exciting Way, Springer Verlag
- [2] T. Banchoff, J.Wermer, Linear Algebra through Geometry, Spring Verlag
- [3] S. Lang, Introduction to Linear Algebra, Spring Verlag
- [4] C.L. Liu, Elements of Discrete Mathematics, Second Edition, Tata McGrawHill.

Illustrative exercises:

Ref. [3] Page-93 Q-1, 2, 3, 4, 5 Page-99 Q-1, 2, 3 Page-104 Q-1, 2, 3, 4, 5 Page-109 Q-1, 2, 3, 7, 8, 9 Page-115 Q-1 Page-121 Q-1, 2, 3 Page-134 Q-1, 2, 3, 4, 6, 8, 10, 11, 12, 17, 18, 19 Page-141 Q-1, 2, 3, 4, 5, 9, 11, 13 Page-149 Q-1, 2, 4, 5 Page-156 Q-1, 2, 3, 4, 6, 7, 8 Page-178 Q-2, 3, 4, 5, 6, 7, 10, 13 Page-189 Q-1, 2, 3, 6 Page-194 O-1, 2 Sec.- 7.1-7.5 (How a determinant is a fn, of matrix) (Revision only) Page-214 Q-9 Page-232 Q-1, 2, 3, 4 Page-237 Q-1, 2, 3, 4, 5, 6 Page-249 Q-1, 2, 3, 4,5, 6, 7, 8, 9, 15, 11 Page-255 Q-1, 2, 3 Ref. [1] Sec.-6.1 All examples in sec-6.1 Sec.-6.4 ex-after def25 (all examples) Ex. Of Ch.-6: 1, 2, 7, 6, 10, 14, 15, 21, 23, 27, 35 (a, b), 29 Ex. Of Ch.-7: 1, 2, 3, 4, 6, 7 Ex. Of Ch.-7: 1, 2, 3, 4, 6, 7 Ref. [2] All examples Ref. [4] Ex. 4.27, 4.28

July 22, 2004

304 - STATISTICS

Chapter	Section	Questions	Reference
10	10.1 to 10.8	10-1, 10-12, 10-22, 10-32, 10-39, 10-47, 10- 63, 10-80, 10-84	[1]
11	11 2 11 3	11-30 11-35	[1]
12	12.1, 12.2, 12.5	12-0, 12-0 12-1, 12-6, 12-11, 12-28, 12-38, 12-40, 12- 44	[1]
14	14.1, 14.2, 14.3	14-3, 14-7, 14-9, 14-10,14-16, 14-43, 14-45	[1]
1	1.1to 1.8	O-1,2,3,9,10	[2]
6	6.8 to 6.10	Q – 9, 11, 16, 17 (Review Exercise 14)	[2]
8	8.1 to 8.8	Section 8.5 – Q 1,2,3,6,7,9,10,12 Section 8.8 - Q 1,2,3,4,8,9,10,15,16,17	[2]
10	10.1 to 10.8	Section 10.4 – Q- 6,7,10,11,15,16 Section 10.10- Q- 1,2,4,5,11,12,17 Section 10.12 – Q- 1,2,3,4,6,12 Section 10.13 – Q- 1,2,3,5,7 Section 10.18- Q – 1,3,4,7,10,12,13,14	[2]
4	4.1 to 4.7	Q- 4.15 to 4.28	[3]
5	5.1 to 5.8	Q- 5.6, 5.11(a), 5.11 (b), 5.20,5.22,5.23, 5.24, Q - 5.25 to Q 5.28	[3]
6	6.1 to 6.6	Q - 6.9, 6.11, 6.12, 6.13, Q 6.14 to 6.19	[3]
10	10.1, 10.2, 10.3,10.4, 10.5 (without proof) 10.7, 10.8, 10.11, 10.12	Q- 10.18, 10.20, 10.21, 10.22, 10.24, 10.25	[3]
11	11.3 to 11.9 (only three variables)		[3]
12	12.2. 12.5, (with out derivation of formula, up to formula 12.13)	Q – 12.8 (1), 12.9 (1), 12.10, 12.11	[3]
4	4.6, 4.7, (P 135- 136)		[4]
9	9.9 (P- 320- 321)		[4]
10	Multiple & Partial Correlation (Pg. 278- 293)		[5]

References:

- 1. John E. Freund, **Mathematical Statistics with Applications**, Seventh Edition, Pearson Education India, 2004.
- 2. R.E. Walpole, R.H. Myers, S.L. Myers and K. Ye, **Probability and statistics**, Seventh Edition, Pearson Education, 2002
- 3. A.M. Goon, M.K. Gupta and B. Dasgupta, **Fundamentals of Statistics**, **Vol I**, Seventh Editon, The World Press Pvt. Ltd, 2000
- 4. A.M. Goon, M.K. Gupta and B.Dasgupta, **An Outline in Statistical Theory, Vol I**, Second Editon, The World Press Pvt. Ltd, 2000
- 5. S.S. Chaudhary, Ram Prasad & Sons, Computational Mathematics & Numerical Methods, ed. 2000

Approximate Marks Distribution for Different Topics

1.	Measures of Central Tendency	04 marks
2.	Measure of Dispersion	05 marks
3.	Moments, Measures of Skewness & Kurtosis	09 marks
4.	Correlation, Regression, Multiple & Partial Correlation, etc.	12 marks
5.	Continuous Distributions : Chi-Squared, Lognormal & Weibull	05 marks
	Dist	
6.	Sampling Distribution & Data Description (including t – Dist ⁿ &	10 marks
	f – Dist ⁿ)	
7.	Theory of Estimation	10 marks
8.	Theory of Hypothesis	10 marks
9.	Regression Method of Least Squares	10 marks
		75 marks

Chapter	Contents	Reference
Ch 2		[1]
Ch 4	Personality and emotions	[1]
Ch 3	Values, attitudes: sources, types	[1]
Ch 9		[1]
Ch 10	Trait theory, behavior theory (ohio state	[1]
	study, managerial grid), fiedler model,	
	leadership style, recent approaches.	
Ch 11		[1]
Ch 12, 13		[1]
Ch 4		[2]
Ch 7	Skip Specific approaches to evaluation, stick	[2]
	to general model only.	
Ch 9		[2]
Ch 11		[2]

305 Organizational Behavior

Case studies on the following topics to be discussed in the class:

Motivation Leadership Communication Performance Appraisal Training and Development

References:

- [1] S.P. Robins, Organizational Behaviour Concepts: Controversies and Applications, (9th edition)
- [2] N.K. Chadha, Human Resource Management, Sai Printographers, New Delhi

Additional Reading:

F.Luthans, Organizational Behaviour, McGrawHill.

Practical - 306 (Based on 301 & 302)

Marks distribution

Total Marks	: 150
Lab Record	: 30
Viva	: 30
Algorithm	: 45
System Software	
(Shell Prog + Jav	va Script) : 45

Note : Practice XML, Perl, CGI Practical for better Understanding (Will be included in Internal Assessment marks)