	Mathematics for Computer Science	*Discrete Math for Computer Science Students*	*Notes on Discrete Mathematics*	*Discrete Mathematics and Its Applications (7ed)*	*Discrete Mathematics Using a Computer (2ed)*	*The Haskell Road to Logic, Math and Programming*
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Link	https://www.seas.harvard.edu/course	http://www.cse.iitd.ernet.in/~ba	http://www.math.nor	https://archive.org/downloa	http://www.x.edu.uy/inet/Spring	http://fldit-www.cs.uni-dortmur
Introduction and Case Study: Basic number theory and cryptography (9 hours)						
Course introduction, natural numbers, integers, arithmetic	3-4				6-8, 63, 213, 215, 363	
Division Algorithm, divisibility, properties of divisibility	187-193	56	48	237-244		
Euclid's algorithm, extended GCD	193-199	57-61	48-51	265-272		289-293
Primes, Euclid's Lemma, Fundamental Theorem of Arithmetic	199-201	56,78	48	257-264		293, 103-111
Congruences, properties of congruences, multiplicative inverses	205-211	53,61	52-54	275-277		
Solving linear congruences, Chinese Remainder Theorem	210, 232-234	72	57-58	277-279		
Number bases, representation, and base conversion	237	121, 124, 125, 128		245-253		
Modular exponentiation, Fermat's Little Theorem	211-212	68	55-56	253-254, 281-283		
RSA	219-221	39, 66-77	56-57	294-303		
Propositional and Predicate Logic (7 hours)						
Propositions, connectives (and, or, implies, not), translation	35-38		6	1-10	112-117	28-35
Truth tables, validity, equivalence	39-43	83,85	7, 9	10-12, 25-27	110, 122–125, 141, 158, 359	36-42
Properties of connectives, laws, normal forms	44-48			27-30	149-156	43-49
Universe of discourse, operation symbols, predicate symbols, variables, predicates (aka propositional functions), for-all, there-exists, relation to "and" and "or"	50-54	97-105	11-12	37-45	163-169	50-55
Expressing propositions using quantifiers, examples	see above	96-98		48-52	169-171	55-58
Other issues related to quantification: scope, dependence, alternation, Skolem functions, laws, normal forms	see above	96-104		45-48	181	62-68
More practice with translation, evaluation	see above			54-58, 58-64		
Proof (6 hours)						
The nature of proof, evidence and counterexamples	3-9			69-70	109-112	71-77
The rules of proof, introduction and elimination, proof state	9-16	15-16		71-78	126-140	78-95
Proof examples	17-19, Problems	109, 112		81-90, 92-107	144-145	
Mathematical induction, examples	115-119	117	62-63	311-317	61-81	239-245
More examples of mathematical induction	119-124	120		318-329	207-219	
Strong induction and examples	124-128	123	63-64	333-340		
Sets, relations, and their applications (12 hours)		9,13				
The set concept, elements, set equality, subsets	69-70	5,13,16	19-20	115-125	189-192	114-120, 125-126
Intersection, union, relative complement, powerset, comprehension, identities	70-72		21-25	127-135	192-194	127-136
Closure conditions and closure				598-602	207-219, 245-249	
The relation concept, pairs, Cartesian product, relations (between and on), examples	72-73, 75-77		26, 32-33	573-575	223-227	136-139, 161-166
Properties of relations (reflexive, symmetric, transitive, antisymmetric, total, onto, unique, one-to-one)	77-78, 270-271	12, 27 - 31	34-35	576-578	228-235	166-171
Composition, inverse, image, inverse image, closure	78-79		30		237-240	171-172
Application 1: representing functions, properties of functions	73-75		27-31	138-151	267-299	205-228
Application 2: equivalence relations, partitions, and quotients	269-270	27-30	35-37	608-614	261-264	188-196
Application 3: partial orders, linear orders, lattices	255-263		35	618-629	252-260	
Application 4: relational databases, joins, and selections				584-589		145-149
Application 5: graphs, paths, cycles, trees, weighted graphs	245-255	263-280	82-116	641-803	313-352	
Haskell						