Curriculum & Syllabus

of

B.Tech. Information Technology

(For the batch admitted in 2008-09)

K.S.RANGASAMY COLLEGE OF TECHNOLOGY
TIRUCHENGODE – 637 215

(An Autonomous Institution affiliated to Anna University of Technology Coimbatore and approved by AICTE New Delhi)

K.S.Rangasamy College of Technology - Autonomous Regulation	R 2008
Department	Information Technology
Programme Code & Name	21: B.Tech. Information Technology

K.S.Rangasamy College of Technology, Tiruchengode - 637 215								
Curriculum for the Programmes under Autonomous Scheme								
Regulation	R 2008							
Department	B.Tech. Information Technology							
Programme Code & Name	21: B.Tech. Information Technology							
Semester I								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
	THEORY							
08210101G	Technical English	3	0	0	3	50	50	100
08210102G	Engineering Mathematics I	3	1	0	4	50	50	100
08210103G	Applied Physics	3	0	0	3	50	50	100
08210104G	Applied Chemistry	3	0	0	3	50	50	100
08210105S	Basics of Electrical Engineering(Common to CSE,IT)	3	1	0	3	50	50	100
08210106S	Basics of Electronics Engineering (Common to CSE,IT)	3	1	0	3	50	50	100
	PRACTICAL							
08210107P	Applied Physics Laboratory	0	0	3	2	50	50	100
08210108P	Electrical Engineering Laboratory	0	0	3	2	50	50	100
08210109P	Electronics Engineering Laboratory	0	0	3	2	50	50	100
08210110P	Engineering Practices Laboratory	0	0	3	2	50	50	100
Total		18	03	12	27	1000		
Semester II								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
	THEORY							
08210201G	Communication Skills	3	0	0	3	50	50	100
08210202G	Engineering Mathematics II	3	1	0	4	50	50	100
08210203G	Materials Science	3	0	0	3	50	50	100
08210204G	Environmental Science	3	0	0	3	50	50	100
08210205S	Fundamentals of Programming (Common to CSE,EEE, ECE,IT)	3	1	0	3	50	50	100
08210206S	Basics of Civil and Mechanical Engineering (Common to CSE and IT)	4	0	0	4	50	50	100
	PRACTICAL							
08210207P	Engineering Graphics Laboratory	1	0	3	3	50	50	100
08210208P	Applied Chemistry Laboratory	0	0	3	2	50	50	100
08210209P	Programming Laboratory	0	0	3	2	50	50	100
08210210P	Comprehension I	0	0	3	0	100	00	100
Total		20	02	12	27	1000		

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Department	B.Tech. Information Technology							
Programme Code & Name	21: B.Tech. Information Technology							
Semester III								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
	THEORY							
08210301G	Engineering Mathematics III	3	1	0	4	50	50	100
08210302C	Signals and Systems	3	1	0	4	50	50	100
08210303C	Computer Architecture	3	0	0	3	50	50	100
08210304C	Data Structures	3	0	0	3	50	50	100
08210305C	Principles of Communication	3	1	0	4	50	50	100
08210306C	Advanced C & C++	3	0	0	3	50	50	100
	PRACTICAL							
08210307P	Digital and Hardware Laboratory	0	0	3	2	50	50	100
08210308P	Data Structures Laboratory	0	0	3	2	50	50	100
08210309P	Advanced C & C++ Laboratory	0	0	3	2	50	50	100
08210310P	Comprehension II	0	0	3	0	100	00	100
08210311P	Career Competency Development I	0	0	2	0	100	00	100
Total		18	03	14	27	1100		
Semester IV								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
	THEORY							
08210401C	Probability and Statistics	3	1	0	4	50	50	100
08210402C	Software Engineering	3	0	0	3	50	50	100
08210403C	Information Coding Techniques	3	0	0	3	50	50	100
08210404C	Java Programming	3	0	0	3	50	50	100
08210405S	Digital Signal Processing (Common to CSE,IT)	3	1	0	4	50	50	100
08210406C	Microprocessors and Microcontrollers	3	0	0	3	50	50	100
	PRACTICAL							
08210407P	Java Programming Laboratory	0	0	3	2	50	50	100
08210408P	Digital Signal Processing Laboratory	0	0	3	2	50	50	100
08210409P	Microprocessors and Microcontrollers Laboratory	0	0	3	2	50	50	100
08210410P	Comprehension III	0	0	3	0	100	00	100
08210411P	Career Competency Development II	0	0	2	0	100	00	100
Total		18	02	14	26	1100		

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Department	B.Tech. Information Technology							
Programme Code & Name	21: B.Tech. Information Technology							
Semester V								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
	THEORY							
08210501G	Professional Ethics	3	0	0	3	50	50	100
08210502C	Object Oriented Analysis and Design	3	0	0	3	50	50	100
08210503C	Operating Systems	3	1	0	4	50	50	100
08210504C	Computer Networks	3	1	0	4	50	50	100
08210505S	Database Management Systems (Common to CSE and IT)	3	1	0	4	50	50	100
08210506C	Telecommunication Systems	3	0	0	3	50	50	100
	PRACTICAL							
08210507P	Case Tools Laboratory	0	0	3	2	50	50	100
08210508P	Operating System and Open Source Laboratory	0	0	3	2	50	50	100
08210509P	Database Management Systems Laboratory	0	0	3	2	50	50	100
08210510P	Career Competency Development III	0	0	2	0	100	00	100
Total		18	03	11	27	1000		
Semester VI								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
	THEORY							
08210601G	Principles of Management	3	0	0	3	50	50	100
08210602S	Numerical Methods (Common to CSE and IT)	3	1	0	4	50	50	100
08210603C	TCP / IP and Socket Programming	3	0	0	3	50	50	100
08210604C	Visual Programming	3	1	0	4	50	50	100
08210605C	Web Technology	3	1	0	4	50	50	100
082106**E	Elective I	3	0	0	3	50	50	100
	PRACTICAL							
08210607P	Visual Programming Laboratory	0	0	3	2	50	50	100
08210608P	Network Laboratory	0	0	3	2	50	50	100
08210609P	Design Project	0	0	3	2	100	00	100
08210610P	Career Competency Development IV	0	0	2	0	100	00	100
Total		18	03	11	27	1000		

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Regulation	R 2008							
Department	Department of B.Tech. Information Technology							
Programme Code & Name	21: B.Tech. Information Technology							
Semester VII								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
	THEORY							
08210701G	Total Quality Management	3	0	0	3	50	50	100
08210702C	Component Based Technology	3	1	0	4	50	50	100
08210703C	Mobile Computing	3	1	0	4	50	50	100
08210704C	Graphics and Multimedia	3	1	0	4	50	50	100
082107**E	Elective II	3	0	0	3	50	50	100
082107**E	Elective III	3	0	0	3	50	50	100
	PRACTICAL							
08210707P	Software Components Laboratory	0	0	3	2	50	50	100
08210708P	Graphics and Multimedia Laboratory	0	0	3	2	50	50	100
08210709P	Project Work - Phase I	0	0	4	2	100	00	100
08210710P	Career Competency Development V	0	0	2	0	100	00	100
Total		18	03	11	27	1000		
Semester VIII								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
	THEORY							
08210801C	System Software	3	1	0	4	50	50	100
082108**E	Elective IV	3	0	0	3	50	50	100
082108**E	Elective V	3	0	0	3	50	50	100
	PRACTICAL							
08210804P	Project Work - Phase II	0	0	20	10	50	50	100
Total		09	01	20	20	400		

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Regulation	R 2008							
Department	Department of Information Technology							
Programme Code & Name	21: B.Tech. Information Technology							
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
Elective I								
08210641E	Compiler Design	3	0	0	3	50	50	100
08210642E	Discrete Mathematics	3	0	0	3	50	50	100
08210643E	Embedded Systems	3	0	0	3	50	50	100
08210644E	Software Quality Management	3	0	0	3	50	50	100
08210645E	Cryptography and Network Security	3	0	0	3	50	50	100
08210646E	Advanced Java Programming	3	0	0	3	50	50	100
08210647E	Fundamentals of IT	3	0	0	3	50	50	100
Elective II								
08210751E	Client / Server Computing	3	0	0	3	50	50	100
08210752E	Distributed Computing	3	0	0	3	50	50	100
08210753E	Grid Computing	3	0	0	3	50	50	100
08210754E	High Performance Networks	3	0	0	3	50	50	100
08210755E	IT Essentials	3	0	0	3	50	50	100
Elective III								
08210761E	Cloud Computing	3	0	0	3	50	50	100
08210762E	C# and .Net	3	0	0	3	50	50	100
08210763E	Cyber Laws and Intellectual Property Rights	3	0	0	3	50	50	100
08210764E	3G Wireless Networks	3	0	0	3	50	50	100
Elective IV								
08210871E	Information System Design	3	0	0	3	50	50	100
08210872E	User Interface Design	3	0	0	3	50	50	100
08210873E	Software Testing	3	0	0	3	50	50	100
08210874E	Digital Image Processing	3	0	0	3	50	50	100
Elective V								
08210881E	Data Warehousing and Mining	3	0	0	3	50	50	100
08210882E	E-Commerce	3	0	0	3	50	50	100
08210883E	Open Source Architecture	3	0	0	3	50	50	100
08210884E	Soft Computing	3	0	0	3	50	50	100

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Department	Information Technology		Programme Code & Name			21: B.Tech. Information Technology		
Semester I								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210101G	TECHNICAL ENGLISH (Common to all B.E./B.Tech. programmes)	3	0	0	3	50	50	100
Objective(s)	To help learners improve their vocabulary and to enable them to use words appropriately in different academic and professional contexts, familiarize learners with different rhetorical functions of Technical English, help learners develop strategies that could be adopted while reading texts, help learners acquire the ability to speak effectively in English in real-life and career related situations, and train learners in organized academic and professional writing.							
1	GRAMMAR AND VOCABULARY				Total Hrs	9		
Word formation with prefixes and suffixes – synonyms and antonyms – verb patterns-subject – verb agreement – tenses (simple and compound tenses) – simple, compound and complex sentences – impersonal passive voice – use of conditionals – comparative adjectives (affirmative and negative) – expanding nominal compounds – articles – use of prepositions - phrasal verbs – commonly mispronounced and misspelt words – British and American vocabulary.								
2	LISTENING				Total Hrs	9		
Extensive listening – listening for general content – listening to fill up gapped texts – intensive listening – listening for specific information: retrieval of factual information – listening to identify topic, context, function, speaker's opinion, attitude, etc. – global understanding skills and ability to infer, extract gist and understand main ideas – note-taking: guided and unguided								
3	SPEAKING				Total Hrs	9		
Verbal and non verbal communication – speech sounds – syllables – word stress (structures and content words) – sentences stress – intonation – Pronunciation drills, tongue twisters – formal and informal English – oral practice – developing confidence – introducing oneself – asking for or eliciting information – describing objects – offering suggestions and recommendations – expressing opinions (agreement / disagreement) – giving instructions.								
4	READING				Total Hrs	9		
Exposure to different reading techniques – reading for gist and global meaning – predicting the content – skimming the text – identifying the topic sentence and its role in each paragraph – scanning – inferring / Identifying lexical and contextual meanings – reading for structure and detail – transfer of information / guided note-making – understanding discourse coherence – sequencing of sentences.								
5	WRITING				Total Hrs	9		
Introductions to the characteristics of technical style – writing definitions and descriptions – paragraph writing (topic sentence and its role, unity, coherence and use of cohesive expressions) – process description (use of sequencing connectives) – comparison and contrast – classifying the data – analyzing / interpreting the data – formal letter writing (letter to the editor, letter for seeking practical training, and letter for undertaking project works in industries) – editing (punctuation, spelling and grammar.								
Total hours to be taught						45		
Text book (s) :								
1	Rizvi M Ashraf, "Effective Technical Communication", 1st Edition, Tata McGrawhil Publishing Company Ltd., New Delhi, 2005.							
Reference(s) :								
1	Dr.M.Balasubraminian and Dr.G.Anbalagan, "Performance in English" Anuradha Publications, Kumbakonan, 2007.							
2	Sharon J. Gerson, Steven M. Gerson, "Techinical Writing – Process & Product". 3rd Edition, Pearson Education (Singapore) (p) Ltd., New Delhi, 2004.							
3	Mitra K. Barun, "Effective Technical Communication – A Guide for Scientists and Engineers", Oxford University Press, New Delhi, 2006.							

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Department	Information Technology		Programme Code & Name			21: B.Tech. Information Technology		
Semester I								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210102G	ENGINEERING MATHEMATICS I (Common to all B.E./B.Tech. programmes)	3	1	0	4	50	50	100
Objective(s)	The course is aimed at developing the basic mathematical skills of engineering students that are imperative for effective understanding of engineering subjects. The topics introduced will serve as basic tools for specialized studies in many engineering fields, significantly in fluid mechanics, field theory and communication engineering.							
I	MATRICES				Total Hrs	12		
Column matrix as vector – linear independent and dependent of vector – Characteristic equation – Eigen values and Eigen vectors of a real matrix – Properties of eigen values and eigenvectors – Cayley – Hamilton theorem (without proof) – Similarity transformation (concept only) – Orthogonal matrices – Orthogonal transformation of a symmetric matrix to diagonal form – Reduction of quadratic form to canonical form by orthogonal transformation.								
2	GEOMETRICAL APPLICATIONS OF DIFFERENTIAL CALCULUS				Total Hrs	12		
Curvature – Cartesian and polar co-ordinates – Centre and radius of curvature – Circle of curvature – Involutes and evolutes – Envelopes – Properties of envelopes and evolutes –Evolute as envelope of normals								
3	FUNCTIONS OF SEVERAL VARIABLES				Total Hrs	12		
Functions of two variables – Partial derivatives – Total differential – Maxima and minima – Constrained maxima and minima – Lagrange's multiplier method – Jacobians.								
4	ORDINARY DIFFERENTIAL EQUATIONS				Total Hrs	12		
Linear differential equations of Second and higher order with constant coefficient when the R.H.S is e^{ax}, x^n $n>0$, $\sin ax$, $\cos ax$, $e^{ax}x^n$, $e^{\alpha x}\sin\beta x$, $e^{\alpha x}\cos\beta x$, $x^n \sin\alpha x$ and $x^n \cos\alpha x$ – Differential Equations with variable coefficients (Cauchy's Form and Legendre's Linear Equation).								
5	DIFFERENTIAL EQUATIONS AND ITS APPLICATIONS				Total Hrs	12		
Simultaneous first order linear equations with constant coefficients – Method of variation of parameters – Solution of specified differential equations connected with electric circuits, bending of beams and simple harmonic motion (Differential equations and associated conditions need be given).								
Total hours to be taught						60		
Text book (s) :								
1	Veerarajan. T., "Engineering Mathematics (for first year)", Fourth Edition, Tata McGraw- Hill Publishing Company Limited, New Delhi, 2005.							
Reference(s) :								
1	Kandasamy. P, Thilagavathy. K and Gunavathy. K, "Engineering Mathematics" – First Edition 1996, S.Chand and Co. – New Delhi 2007.							
2	Grewal. B.S., "Higher Engineering Mathematics", Thirty Eighth Edition, Khanna Publishers, Delhi, 2004.							
3	Kreyszig. E., "Advanced Engineering Mathematics," Eighth Edition, John Wiley and Sons (Asia) Limited, Singapore 2001.							
4	Venkataraman.M.K, "Engineering Mathematics, Volume I & II Revised Enlarged", Fourth Edition", The National Pub. Co., Chennai, 2004.							

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Semester I								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210103G	APPLIED PHYSICS (Common to all B.E./B.Tech. Programmes)	3	0	0	3	50	50	100
Objective(s)	Design of acoustically good buildings, Structural identification of engineering materials, Non destructive Techniques, Application of Quantum Physics and Application of Lasers in Engineering and Technology.							

I	LASERS	Total Hrs	9
Introduction – principles of spontaneous emission and stimulated emission - Population inversion, Pumping-Types of Lasers:He-Ne,CO_2,Nd-YAG,Ruby Lasers, Semiconductor Laser- Applications: Lasers in Microelectronics, Welding, Heat Treatment and Cutting-Holography.			
2	FIBER OPTICS AND APPLICATIONS	Total Hrs	9
Principles-Modes of Propagation-Crucible-Crucible Technique-Classification based on materials, refractive index and modes of propagation-Splicing-Losses in Optical fiber-Light Sources for fibre optics-Detectors-Fiber optical Communication Links-Fiber optic Sensors: Temperature and Displacement measurement.			
3	QUANTUM PHYSICS AND APPLICATIONS	Total Hrs	9
Introduction to quantum theory-Dual Nature of Matter and Radiation-De-Broglie wavelength-Uncertainty principle and its applications-Compton effect-Expression for Compton Shift-Experimental Verification-Schrodinger's equation (Time dependent and Time independent) - Particle in a box-Electron microscope-Scanning electron microscope.			
4	ULTRASONICS	Total Hrs	9
Introduction of Ultrasonic Waves - Magnetostriction effect, Magnetostriction generator, Inverse piezoelectric effect, Piezoelectric generator-Detection of ultrasonic waves-Properties- Cavitation -Industrial Applications drilling, welding, soldering and cleaning- Non destructive testing- Pulse echo system, Through transmission and Resonance system.			
5	ACOUSTICS	Total Hrs	9
Introduction-Classification of Sound-Characteristics of musical sound - Loudness-Sound intensity Level(I_L)-Weber-Fechner Law-Decibel-Phon, Sone-Acoustics of building-Reverberation-Reverberation time-Sabine's formula-Absorption coefficient-Determination of absorption co-efficient-Factors affecting the acoustics of buildings and their remedies-Factors to be followed for good acoustic of building.			
Total hours to be taught			45

Text book (s) :	
1	"APPLIED PHYSICS", 1st Edition Authored by Dept. of Physics KSRCT.
Reference(s) :	
1	Dr.Jayakumar S,"Engineering Physics", R K Publishers, Coimbatore, 2003.
2	Dr.Arumugam.M,"Engineering Physics" , 5th Edition Anuradha Publications,Kumbakonam,2006.
3	Gaur R.K and Gupta S.L,"Engineering Physics", Dhanpati Rai and Sons, New Delhi,2001.
4	Charles Kittel, "Introduction to Solid State Physics", Dhanpati Rai and Sons, New Delhi,2001.
5	Feynman,"Lecturers in Quantum Mechanics" 4th edition Narosa Publication, New Delhi, 2003.

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		L	T	P	C	CA	ES	Total
08210104G	APPLIED CHEMISTRY (Common to all B.E./B.Tech. programmes)	3	0	0	3	50	50	100
Objective(s)	The student should be conversant with the principles involved in electro chemistry, corrosion and its inhibition treatment of water for industrial purposes and the concept of energy storage devices knowledge with respect to fuels and combustion polymer and engineering materials.							

1	WATER TREATMENT	Total Hrs	9

Turbidity, color, acidity, alkalinity, nitrogen, fluoride – (Definition, sources and sanitary significance only) – Water- Hardness- Estimation of hardness by EDTA method- Boiler feed water- scale formation, corrosion, caustic embrittlement, priming and forming- softening of water- lime soda process- zeolite process – demineralization – desalination – electro dialysis and reverse osmosis.

2	ELECTRO CHEMISTRY	Total Hrs	9

Electrochemical cells – reversible and irreversible cells – EMF – measurements – Standard Weston Cadmium cell – Nernst equation – problems – Electrodes – Single electrode potential – Types of electrodes – Calomel electrode – Electrochemical series – significance – Potentiometric titrations – Batteries – Lead acid and Ni-Cd batteries.

3	CORROSION AND CORROSION CONTROL	Total Hrs	9

Corrosion – Electrochemical and chemical – Mechanism – corrosion reaction – types of corrosion – differential aeration – granular - pitting – corrosion control – Sacrificial anode and Impressed current method – Inhibitors – Protective coatings – Preliminary treatment – Electroplating (Cr & Ni) – Paints – Constituents and their functions – mechanism of drying.

4	FUELS AND COMBUSTION	Total Hrs	9

Fuels – Calorific values – Gross and Net – Theoretical air for combustion – flue gas analysis – Orsat method – Coal – proximate and ultimate analysis – their importance – metallurgical coke – Petrol – Straight run, cracked and polymer petrol – Synthetic petrol – Fisher- Tropsch and Bergius method – Octane number – improving octane number by additives – Diesel – Cetane number – Water gas, producer gas and LPG.

5	POLYMERS	Total Hrs	9

Polymer structure – Nomenclature – Polymerization – types – mechanism (free radical only) – co-ordination polymerization – mechanism – individual polymers – Polyethylene, Polypropylene, PVC, Teflon, Acrylics, Nylon6-6, Bakelite, Polyester, Epoxy, Polyurethane – Structure, Preparation, Properties and Uses – Compounding and fabrication – Compression, Injection, Extrusion and Blow moulding– Foamed plastics.

Total hours to be taught	45

Text book (s) :

1	Applied Chemistry by R.Palanivelu, R.Parimalam, B.Srividhya, K.Tamilarasu and P.Padmanaban

Reference(s) :

1	Jain P.C. & Monica Jain, “Engineering Chemistry”, 14th Edition, Dhanpat Rai Publishing Co. New Delhi, 2002.
2	Clair N Sawyer and Perry L Mc Carty,”Chemistry for Environmental Engineering”, 14th Edition TMH Book Company, New Delhi, 2002.
3	Dara S.S. “A text book of Engineering Chemistry”, S.Chand & Co. Ltd., 2003.
4	Uppal M.M. revised by S.C.Bhatia, ”Engineering Chemistry”, 6th Edition Khanna Publishers, New Delhi, , 2001.

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Semester I								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210105S	BASICS OF ELECTRICAL ENGINEERING(Common to CSE & IT)	3	1	0	3	50	50	100
Objective(s)	To improve the basic knowledge in electrical and electronic engineering among the students, understand the concepts of various electrical laws, know the applications of electrical and electronic device.							

1	FUNDAMENTALS OF DC AND AC CIRCUITS	Total Hrs	12
Fundamentals of DC circuits: Ohm's law, Kirchho's law, Simple resistive circuits – E ect o series and parallel resistances – Mesh and Nodal analysis – Simple problems. Fundamentals of AC circuits: RMS and Average values of sine wave, Form factor, Peak factor. Single phase AC circuits – Impedance, Power and Power Factor – RL, RC, RLC circuits – Simple AC circuits – problems			
2	FUNDAMENTALS OF MAGNETIC CIRCUITS	Total Hrs	12
Ohm's law of magnetic circuit, Simple and composite magnetic circuits, Effect of air gap – leakage factor – fringing effect – Simple problems. Faraday's law of electromagnetic induction – Self and Mutually induced EMF – Statically and Dynamically induced EMF – Simple problems.			
3	DC MACHINES AND TRANSFORMERS	Total Hrs	12
DC Machine: Construction – EMF equation of DC generator – Types of Generators and Motors – Characteristics. Transformer: Construction – EMF equation – Transformation ratio – Types of Transformers – Instrumentation Transformer.			
4	INDUCTION MACHINES	Total Hrs	12
Three phase Induction Motor: Construction, Types – Principle of Operation – Torque Equation – Slip Vs Torque Characteristics of Cage and wound rotor. Single Phase Induction Motor: Principle of Operation – Types – Applications.			
5	POWER SUPPLIES	Total Hrs	12
Hal Wave and Full Wave Rectifiers – Bridge Rectifier – Types of filters – Voltage Regulator – Introduction to SMPS and UPS			
Total hours to be taught			60
Reference (s) :			
1	B.L.Theraja and A.K.Theraja, "Electrical Technology", S.Chand & Company LTD, New Delhi, 2005.		
2	V.N.Mittel, "Basic Electrical Engineering", Tata Mc Graw Hill, New Delhi, 1990.		
3	V. Del Toro, "Electrical Engineering Fundamentals", Prentice Hall of India, New Delhi, 1993.		

<table>
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<tr><td colspan="9">Semester I</td></tr>
<tr><td colspan="2" rowspan="2">Course Code</td><td colspan="2" rowspan="2">Course Name</td><td colspan="3">Hours / Week</td><td>Credit</td><td colspan="2">Maximum Marks</td><td></td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210106S</td><td colspan="2">BASICS OF ELECTRONICS ENGINEERING(Common to CSE & IT)</td><td>3</td><td>1</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To have an overview of electronic devices, study Amplifiers and Oscillators, study combinational and sequential circuits, study the design of digital system.</td></tr>
<tr><td>1</td><td colspan="5">INTRODUCTION TO SEMICONDUCTORS AND DIODES</td><td>Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="8">Introduction : Semiconductors – N-Type and P-Type – Majority and Minority Carriers – PN Junction Characteristics – Type and Applications – Power Supplies – Rectifier – Filters – Voltage Multiplier – Zener Regulators.</td></tr>
<tr><td>2</td><td colspan="5">TRANSISTORS-INTRODUCTION TO SMALL SIGNAL AMPLIFIER</td><td>Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="8">Amplification – Transistor Characteristic Curve – Transistor – Types – Transistor as Switch – Measuring gain – Common Emitter Amplifier – Stabilizing the Amplifier – Other Configurations.</td></tr>
<tr><td>3</td><td colspan="5">LARGE SIGNAL AMPLIFICATION – OSCILLATORS</td><td>Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="8">Basic features – Amplifier classification – Class A,B, AB, C and Switched Mode Amplifiers – Oscillators – RC, LC, Crystal and Relaxation Oscillators – SCR.</td></tr>
<tr><td>4</td><td colspan="5">DIGITAL LOGIC AND COMBINATIONAL CIRCUITS</td><td>Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="8">Binary number System and Codes – Basic Logic Gates and Truth Tables – Boolean Algebra and De-Morgan's Theorem – Logic Circuits – Sum of Product Methods – Product of Sum Method – Simple Design of Combinational Logic Networks – Digital Arithmetic – Addition, Subtraction, Multiplication and Division of Binary Numbers.</td></tr>
<tr><td>5</td><td colspan="5">SEQUENTIAL LOGIC CIRCUITS</td><td>Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="8">Flip Flops – SR Flip Flop, Clocked SR, Master Slave, SR, JK Flip Flop – D Flip Flop – Registers – Types of Registers – Counters – Synchronous and Asynchronous Counters – BCD Decade Counter.</td></tr>
<tr><td colspan="6">Total hours to be taught</td><td colspan="3">60</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Charles A Schuler, "Electronics Principles and Applications", 6th edition, McGraw Hill, 2003.</td></tr>
<tr><td>2</td><td colspan="8">Albert Malvino, David J Bates, "Electronic Principles", 7th Edition, TMH, 2007.</td></tr>
<tr><td>3</td><td colspan="8">Santiram Kal, "Basic Electronics", PHI, 2002.</td></tr>
</table>

<table>
<tr><td colspan="7">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2008</td></tr>
<tr><td>Department</td><td colspan="2">Information Technology</td><td colspan="2">Programme Code &Name</td><td colspan="2">21: B.Tech.
Information Technology</td></tr>
<tr><td colspan="8">Semester I</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Course Name</td><td colspan="3">Hours / Week</td><td>Credit</td><td colspan="2">Maximum Marks</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td>08210107P</td><td>APPLIED PHYSICS LABORATORY</td><td>0</td><td>0</td><td>3</td><td>2</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td>Objective(s)</td><td colspan="7">To give exposure for understanding the various physical phenomena’s in optics, acoustics material science and properties of matter in engineering applications, determine the fundamental constants like acceleration due to gravity, viscosity of liquid, thermal conductivity of bad conductor etc.,</td></tr>
<tr><td colspan="8">LIST OF EXPERIMENTS

1. Determination of rigidity modulus of a wire by torsional pendulum.
2. Determination of Young’s modulus of the material of a uniform bar by non-uniform bending method.
3. Determination of Young’s modulus of the material of a uniform bar by uniform bending method.
4. Determination of Viscosity of liquid by Poiseuille’s method.
5. Determination of acceleration due to gravity by compound (bar) pendulum.
6. Determination of wavelength of mercury spectrum by Spectrometer grating.
7. Determination of thickness of fiber by Air-wedge method
8. Determination of wavelength of laser using grating and particle size determination
9. Determination of velocity of ultrasonic waves and compressibility using ultrasonic interferometer.
10. Determination of band gap energy of a semiconductor.
11. Determination of radius of curvature of a Plano convex lens by Newton rings method.
12. Determination of thermal conductivity of a bad conductor using Lee’s disc method.</td></tr>
<tr><td colspan="7">Total Hours to be taught</td><td>36 hours</td></tr>
<tr><td colspan="8">Text book :</td></tr>
<tr><td>1</td><td colspan="7">Engineering Physics Laboratory-Authored by Dept. of Physics KSRCT.</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology		Programme Code &Name			21: B.Tech. Information Technology		
Semester I								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210108P	ELECTRICAL ENGINEERING LABORATORY	0	0	3	2	50	50	100
Objective(s)	To import the practical knowledge in basic electrical and electronics devices, understand the applications of Electrical and Electronics Equipments							

LIST OF EXPERIMENTS

1. Verification of Ohm's law and Kirchhoff's laws
2. Measurement of Power and Impedance in RL, RC and RLC circuits
3. Open Circuit and Load Characteristics of Separately Excited DC Generator
4. Load Test on DC Shunt motor
5. Load Test on Single Phase Transformer
6. Load Test on Single Phase and Three Phase Induction Motor
7. Single Phase Half Wave Full Wave Rectifiers
8. Study of Passive Filters
9. Study of Voltage Regulator Circuits
10. Study of SMPS and UPS

<table>
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<tr><td>Department</td><td colspan="3">Information Technology</td><td colspan="2">Programme Code &Name</td><td colspan="3">21: B.Tech. Information Technology</td></tr>
<tr><td colspan="9">Semester I</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2">Course Name</td><td colspan="3">Hours / Week</td><td>Credit</td><td colspan="3">Maximum Marks</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td>08210109P</td><td>ELECTRONICS ENGINEERING LABORATORY</td><td>0</td><td>0</td><td>3</td><td>2</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td>Objective(s)</td><td colspan="8">To obtain and study the characteristics of diodes, Transistors and other semi conductor devices, obtain the performance parameters of simple electronic circuits involving discrete components, study the application of Integrated circuit timers and operational amplifiers, study and implement the combinational circuits, sequential circuits and Flip flops using logic gates.</td></tr>
</table>

LIST OF EXPERIMENTS

1. Forward and Reverse characteristics of PN diode and Zener Diode
2. Implementation of HW & FW Rectifier with simple Capacitor Filter
3. Input and Output characteristics of BJT in CE configuration
4. Frequency response of Common Emitter Amplifier
5. Observation of output waveform with cross over distortion using class B complementary symmetry power amplifier
6. Implementation of RC/LC Oscillator and study the waveforms
7. Characteristics of UJT and SCR
8. Relaxation Oscillator using UJT
9. Verification of truth table or various TTL Logic Gates
10. Half adder, Full adder, Half subtractor and Full subtractor
11. Implementation and Verification of truth table RS, D and T flip Flops using Logic Gates
12. Implementation and Verification of BCD Decade Counter.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology	Programme Code &Name			21: B.Tech. Information Technology			
Semester I								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210110P	ENGINEERING PRACTICES LABORATORY	0	0	3	2	50	50	100
Objective(s)	To provide exposure to the students with hands on experience on various basic engineering practices in Mechanical Engineering.							

LIST OF EXERCISES

Plumbing

1. Safety aspects in Plumbing.
2. Study of tools and equipments – preparation of models
3. Cutting and Threading of G.I. Pipes
4. Study of valves, taps and repairing.
5. Measuring and marking practice of PVC & G.I. pipes – connection to service line

Sheet Metal

1. Study of Tools, Equipments and Safety precautions.
2. Drawing of tools and accessories
3. Different types of joints making – knocked up, double grooving joints
4. Model making –Trays, Baskets and Funnels.

Electrical Wiring

1. Safety aspects of Electrical wiring
2. Study of Electrical materials and wiring components
3. Wiring circuit for a lamp using single and Stair case switches.
4. Wiring circuit for fluorescent lamps
5. Calculation of power and energy.

Welding and Soldering

1. Safety aspects of Welding and Soldering
2. Study of Gas and Arc Welding Equipments
3. Welding of Lap, Butt, T-joints & Corner Joints
4. Soldering of Small Electrical and Electronic Circuits

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Semester II								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210201G	COMMUNICATION SKILLS (Common to all B.E./B.Tech. programmes)	3	0	0	3	50	50	100
Objective(s)	To equip students of engineering and technology with effective speaking and listening in English, help them develop their soft skills and people skills, which will make the transition from college to workplace smoother, help them to excel in their jobs, enhance students performance at placement interviews, group discussion and other recruitment exercises.							
1	LISTENING				Total Hrs	9		
Barriers in Listening, Listening to academic lectures, Listening to announcements at railway stations, airports, etc, Listening to news on the radio / TV, Listening to casual conversation, Listening to live speech.								
2	COMMUNICATION				Total Hrs	9		
What is communication? - What does it involve? - Accuracy - fluency and appropriateness - Levels of formality, Differences between spoken and - written communication, Greeting and introduction - Making requests - Asking for permission - giving / denying permission - Offering help - accepting / declining help - Giving instructions - Giving directions - Art of small talk - Taking part in casual conversation - Making a short formal speech - Describing people - place - things and events.								
3	CONVERSATION SKILLS				Total Hrs	9		
Using the telephone - Preparing for a call - Stages of a call - Handling calls - Identifying self - Asking for repetitions - Spelling out names or words. Giving information on the phone - Making requests - Answering calls -Leaving messages on answering machines - Making / changing appointments - Making complaints – Reminding - Agreeing / disagreeing – Listening - Listening and taking messages - Giving instructions & responding to instructions.								
4	REMEDIAL GRAMMAR & VOCABULARY				Total Hrs	9		
Subject – verb agreement - Tenses - 'Do' forms - Active and Passive voice - Use of negatives - Prepositions - Phrasal verbs - Correct use of words - Use of formal words in informal situations - Indianisms - Commonly - confused words - Common errors & remedial measures								
5	WRITTEN COMMUNICATION & CAREER SKILLS				Total Hrs	9		
Writing e-mails - Writing Reports - Note – taking and Note – making - Preparing curriculum vitae and cover - letters - Facing an interview - Presentation skills - Persuasion skills.								
Total Hours to be taught						45		
Text book(s):								
1	Rizvi M Ashraf, "Effective Technical Communication", 1st Edition, Tata McGrawhil Publishing Company Ltd., New Delhi, 2005.							
Reference(s) :								
1	Kiranmai Dutt P, Geetha Rajeevan and Prakash C L N, "A Course in Communication Skills", by Ebek – Cambridge University Press India Pvt. Ltd.,							
2	Naterop, cup "Telephoning in English – Cambridge University Press India Pvt.Ltd., 2007							
3	Richard, "New Interchange Services (Student's Book)" – Introduction, Level – 1, Level – 2, Level – 3, Cambridge University Press India Pvt.Ltd., 2007.							

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology	Programme Code & Name			21: B.Tech. Information Technology			
Semester II								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210202G	ENGINEERING MATHEMATICS II (Common to all B.E./B.Tech. programmes)	3	1	0	4	50	50	100
Objective(s)	The course is aimed at developing the basic mathematical skills of engineering students that are imperative for effective understanding of engineering subjects. The topics introduced will serve as basic tools for specialized studies in many engineering fields, significantly in fluid mechanics, field theory and communication engineering.							

I	MULTIPLE INTEGRALS	Total Hrs	12
Double integration in Cartesian and Polar coordinates – Change of order of integration – Area between two curves – Area as double integrals – Triple integration in Cartesian coordinates – Volume as Triple integrals (Simple problems only).			
2	VECTOR CALCULUS	Total Hrs	12
Gradient, divergence and curl – Line, surface and volume integrals – Green's, Gauss divergence and Stoke's theorems (without proof) – Verification of the above theorems and evaluation of integrals using them			
3	ANALYTIC FUNCTIONS	Total Hrs	12
Function of a complex variable – Analytic function – Necessary conditions – Cauchy – Riemann equations – Sufficient conditions (excluding proof) – Properties of analytic function – Harmonic conjugate – Construction of Analytic functions - Conformal mapping: w= z +a, az 1/z and bilinear transformation			
4	IV COMPLEX INTEGRATION	Total Hrs	12
Cauchy's theorem (without proof) – Cauchy's integral formula – Taylor and Laurent series (without proof) – Singularities – Classification – Cauchy's residue theorem – Contour integration – circular and semi-circular contours (excluding poles on real axis).			
5	LAPLACE TRANSFORM	Total Hrs	12
Laplace Transform – Conditions for existence – Transform of elementary functions – Basic properties – Derivatives and integrals of transforms – Transforms of derivatives and integrals – Initial and final value theorems – Transform of unit step function – Transform of periodic functions. Inverse Laplace transform – Convolution theorem – Solution of linear ODE of second order with constant coefficients and first order simultaneous equations with constant coefficients using Laplace transformation			
Total hours to be taught			60

Text book(s)::

1. Veerarajan. T., "Engineering Mathematics (for first year)", Fourth Edition Tata McGraw- Hill Publishing Company Limited, New Delhi, 2005.

Reference(s) :

1. Kandasamy. P, Thilagavathy. K and Gunavathy. K, "Engineering Mathematics" –S.Chand and Co. – New Delhi 2007.
2. Grewal. B.S., "Higher Engineering Mathematics", Thirty Eighth Edition, Khanna Publishers, Delhi, 2004.
3. Kreyszig. E., "Advanced Engineering Mathematics," Eighth Edition, John Wiley and Sons (Asia) Limited, Singapore 2001.
4. Venkataraman.M.K, "Engineering Mathematics", Volume I & II Revised Enlarged Fourth Edition", The National Pub. Co., Chennai, 2004.

<table>
<tr><td colspan="6">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td colspan="3">R 2008</td></tr>
<tr><td colspan="2">Department</td><td colspan="2">Information Technology</td><td colspan="2">Programme Code & Name</td><td colspan="3">21: B.Tech. Information Technology</td></tr>
<tr><td colspan="9">Semester II</td></tr>
<tr><td colspan="2" rowspan="2">Course Code</td><td rowspan="2">Course Name</td><td colspan="4">Hours / Week</td><td colspan="3">Maximum Marks</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210203S</td><td>MATERIALS SCIENCE (Common to all B.E./B.Tech. programmes except Nano)</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To impart fundamental knowledge in various engineering subject and applications, application of conducting, superconducting and magnetic materials, application of dielectrics, new engineering materials and nanomaterials in modern technology.</td></tr>
<tr><td>1</td><td colspan="4">CONDUCTING AND SUPERCONDUCTING MATERIALS</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Introduction - Free electron theory - Electrical conductivity - Expression for electrical conductivity - Thermal conductivity - Expression for thermal conductivity - Lorentz number - Widemann Franz law (derivation) - Verification of Ohm's law - Classical free electron theory - Advantages and drawbacks. Properties of superconductors - Critical field - Meissner's effect - Isotope effect - BCS theory - Type I and Type II superconductors - Josephson effect (qualitative) - High T_c superconductors - Applications: SQUID, Cryotron, Magnetic levitation.</td></tr>
<tr><td>2</td><td colspan="4">SEMICONDUCTING MATERIALS</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Elemental and Compound semiconductors - Intrinsic and Extrinsic semiconductors - Properties - Carrier concentration in intrinsic and extrinsic semiconductors (derivation) - Fermi level - Variation of Fermi level with temperature and impurities - Hall effect - Hall coefficient - Experimental determination of Hall coefficient, Applications.</td></tr>
<tr><td>3</td><td colspan="4">MAGNETIC MATERIALS</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Classification of magnetic materials - Properties - Heisenberg and Domain theory of ferromagnetism - Hystersis - Hard and Soft magnetic materials - Ferrites - Structure, Preparation and Applications - Magnetic recording and readout- Bubble memory - Magnetic tape - Floppy disc and Magnetic hard disc.</td></tr>
<tr><td>4</td><td colspan="4">DIELECTRIC MATERIALS</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Introduction - Polarization: Electronic , Ionic, Orientational and Space charge – Frequency and temperature dependence of polarization - Active and Passive dielectric - Internal field - Clausius -Mosotti relation (derivation) - Dielectric losses - Dielectric breakdown mechanism - Ferroelectric materials: Properties and Applications.</td></tr>
<tr><td>5</td><td colspan="4">NEW ENGINEERING MATERIALS</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Shape Memory Alloys (SMA): Characteristics, Properties of NiTi alloy and applications, Metallic glasses: Preparation, Properties and Applications. Nanomaterials: Fabrication methods - Top-down process: Ball Milling and Nanolithography - Bottom-up process: Vapor phase deposition method (PVD and CVD) - Carbon nano tubes: fabrication and applications.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Text book(s):</td></tr>
<tr><td>1</td><td colspan="8">“Material Science”, 1st Editon, Authored by Dept. of Physics KSRCT, 2008.</td></tr>
<tr><td colspan="9">Reference(s) :</td></tr>
<tr><td>1</td><td colspan="8">Raghavan V,”Materials Science and Engineering”, Prentice Hall of India, Newdelhi, 2001.</td></tr>
<tr><td>2</td><td colspan="8">Rajendran V., “Materials Science”, Tata McGraw Hill, Newdelhi, 2005.</td></tr>
<tr><td>3</td><td colspan="8">Palanisamy P.K., “Materials Science”, SCITECH Publications, Chennai, 2002.</td></tr>
<tr><td>4</td><td colspan="8">Dr.Arumugam M., “Materials Science”, Anuradha Agencies, Kumbakonam, 2003.</td></tr>
<tr><td>5</td><td colspan="8">Dr. S. Muthukumaran, V. Mohan, S. Masilamani, M. Mani, “Materials Science” 1st Edtion, Sri Krishna Publications, Chennai 2007.</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology			Programme Code & Name		21: B.Tech. Information Technology		
Semester II								
Course Code	Course Name	Hours / Week			Credit	Maximum marks		
		L	T	P	C	CA	ES	Total
08210204G	ENVIRONMENTAL SCIENCE (Common to all B.E./B.Tech. programmes)	3	0	0	3	50	50	100
Objective(s)	The student should be conversant with the evolution of environmentalism and the importance of environmental studies, various natural resources and the current threats to their sustainability, Significance and protection of bio diversity and various forms of environmental degradation and significant international conventions and protocols for the protection of environment.							

1	ATMOSPHERE AND ECOSYSTEM	Total Hrs	9

Atmosphere – composition of atmosphere (troposphere, stratosphere, mesosphere and thermosphere) - Ozone and ozone depletion – Air pollution – sources, effects and control – Green house effect - Global warming – Climate change – Acid rain - Planet Earth – Biosphere – Hydrosphere – Lithosphere. Concept of ecosystem – structure and functions of ecosystem- producers, consumers and decomposers - Energy flow – Ecological succession-Food chains-Food webs- Ecological pyramids-Introduction, types, characteristic features-structures and function of forest, grassland and aquatic ecosystems (ponds and rivers) - Case Studies in current scenario.

2	WATER RESOURCES AND ITS TREATMENT	Total Hrs	9

Water – hydrologic cycle – ground water – water shed – water use and quality – point and non-point sources of pollution – Oceans and fisheries – salinity – temperature – density – pressure – light – bioluminescence – Tsunamis – Glaciers – Water pollution – dissolved oxygen – surface water treatment – waste water treatment – Thermal pollution, noise pollution and control - Case Studies in current scenario.

3	LAND RESOURCES AND ITS DEGRADATION	Total Hrs	9

Land – weathering and erosion - types of weathering – types of soil – soil erosion – land slides – Wet land and deforestation- deserts – types – desertification – land degradation – features of desert – geochemical cycling – solid and hazardous waste, chemical waste, radio active waste – non hazardous waste - Case Studies in current scenario.

4	FUTURE POLICY AND ALTERNATIVES	Total Hrs	9

Future policy and alternatives – fossil fuels – nuclear energy – solar energy – wind energy – hydroelectric energy – geothermal energy – tidal energy – sustainability – green power – nano technology – international policy - - Case Studies in current scenario.

5	BIO DIVERSITY AND HUMAN POPULATION	Total Hrs	9

Introduction to Bio diversity-Definition, genetic species and ecosystem diversity.
Biogeographical classification of India – Biodiversity in India – India as mega diversity nation – hotspots of biodiversity in India – threats to biodiversity – endemic and endangered- habitat – conservation of biodiversity – environment protection act – issues and possible solution – population growth - population explosion – environment and human health - Case Studies in current scenario.

Total hours to be taught	45

Text book :

1.	Environmental Science by R.Palanivelu, R.Parimalam, and B.Srividhya.

References :

1.	Linda D. Williams – “Environmental Science Demystified”, Tata McGraHill Publishing Company Limited, 2005.
2.	G. Tyler Miller, JR _ “Environmental Science “, Thomson, 2004
3.	William P. Cunningham – “Principles of Environmental Science”, Tata McGraHill, New Delhi, 2007.
4.	Bharucha Erach –“The Biodiversity of INDIA”, Mapin Publishing Private Limited, Ahamedabad, India.
5.	Trivedi R.K., “Hand Book of Environmental Laws, Rules, Guidelines, Compliances and Standards”, Volume I & II, Environmedia.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology		Programme Code & Name			21: B.Tech. Information Technology		
Semester II								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210205S	FUNDAMENTALS OF PROGRAMMING Common to ECE,EEE,CSE,IT)	3	1	0	3	50	50	100
Objective(s)	To impart knowledge in the fundamentals of computer and programming language, storage devices.							

I	COMPUTER BASICS	Total Hrs	12
Evolution of computers- Generations of computers- Applications of computers- - Computer Memory and Storage- Input Output Media - Algorithm- Flowchart- Pseudo code – Program control structures- - Programming languages- - Computer Software- Definition- Categories of Software.			
2	C FUNDAMENTALS	Total Hrs	12
Introduction to C- Constants- Variables- Data types- Operators and Expressions- Managing Input and Output operations- Decision Making and Branching- Looping.			
3	ARRAYS AND FUNCTIONS	Total Hrs	12
Arrays- Character Arrays and Strings- User defined functions- Storage Classes			
4	STRUCTURES AND FILES	Total Hrs	12
Structures- Definition- Initialization- Array of Structures- Structures within structures- Structures and Functions- Unions- File Management.			
5	POINTERS	Total Hrs	12
Pointer Basics – Pointer Arithmetic – Pointers and array Pointers and character string Pointers and functions – Pointers and structures.			
Total hours to be taught			60
Text book (s) :			
1	Dr.K.Duraisamy, R.Nallusamy, R.Kanagavalli, S.Ponmathangi, D.Muthusankar, P.Kaladevi “Fundamentals of Programming”, Techvision Publishers 2008.		
2.	E.Balagurusamy, “Programming in ANSI C”, TMH, New Delhi, 2002.		
Reference(s):			
1	Rajaraman V, “Fundamentals of Computers”, Fourth Edition, PHI 2006.		
2	Byron Gottfried, “Programming with C”, II Edition, TMH, 2002.		

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<tr><td colspan="9">Semester II</td></tr>
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<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210206S</td><td colspan="3">BASICS OF CIVIL AND MECHANICAL ENGINEERING (Common TO CSE&IT)</td><td>4</td><td>0</td><td>0</td><td>4</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">At the end of this semester, the student should be conversant in properties of materials, components of structures and basic concepts of survey.</td></tr>
<tr><td>1</td><td colspan="5">INTRODUCTION</td><td colspan="2">Total Hrs</td><td colspan="2">10</td></tr>
<tr><td colspan="9">Introduction – Civil Engineering – Materials – bricks – stones – sand - cement – concrete – steel sections – site for foundations. Bearing capacity – loads – Requirement of good foundations – types.</td></tr>
<tr><td>2</td><td colspan="5">SUPERSTRUCTURE</td><td colspan="2">Total Hrs</td><td colspan="2">10</td></tr>
<tr><td colspan="9">Superstructure – brick masonry – stone masonry – beams – columns – lintels – roofing – flooring – plastering – valuation mechanics – internal and external forces – strain – elasticity – Types of Bridges and Dams – Basics of Interior and Landscaping.</td></tr>
<tr><td>3</td><td colspan="5">SURVEYING</td><td colspan="2">Total Hrs</td><td colspan="2">10</td></tr>
<tr><td colspan="9">Surveying – Objects – types – classification – principles – measurements of distances – angles – leveling – determination of areas – illustrative examples.</td></tr>
<tr><td>4</td><td colspan="5">POWER PLANT ENGINEERING</td><td colspan="2">Total Hrs</td><td colspan="2">10</td></tr>
<tr><td colspan="9">Introduction, Classification of Power Plants – Working principle of steam, Gas, Diesel, Hydro-electric and Nuclear Power Plants – Merits and Demerits – Pumps and turbines – working principle of Reciprocating pumps (single acting and double acting) – Centrifugal Pump.</td></tr>
<tr><td>5</td><td colspan="5">IC ENGINES</td><td colspan="2">Total Hrs</td><td colspan="2">10</td></tr>
<tr><td colspan="9">Internal combustion engines as automobile power plant – Working principle of Petrol and Diesel Engines – Four stroke and two stroke cycles – Comparison of four stroke and two stroke engines – Boiler as a power plant.</td></tr>
<tr><td>6</td><td colspan="5">REFRIGERATION AND AIR CONDITIONING SYSTEM</td><td colspan="2">Total Hrs</td><td colspan="2">10</td></tr>
<tr><td colspan="9">Terminology of Refrigeration and Air conditioning. Principle of vapour compression and absorption system – Layout of typical domestic refrigerator – Window and Split type room Air conditioners.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">60</td></tr>
<tr><td colspan="9">Reference(s):</td></tr>
<tr><td>1</td><td colspan="8">Shanmugam G. and M.S. Palanisamy, “Basic Civil and Mechanical Engineering”, TMH Publishing Co., New Delhi, 1996.</td></tr>
<tr><td>2</td><td colspan="8">Ramamrutham S. “Basic Civil Engineering”, Danpat Rai Publishing Company, 1999 Edition.</td></tr>
<tr><td>3</td><td colspan="8">Shanmugam G., ″Basic Mechanical Engg.″, TMH Publishing Co., New Delhi, 2005.</td></tr>
<tr><td>4</td><td colspan="8">Venugopal K. and Prabu Raja V., “Basic Mechanical Engineering”, Anuradha Publishers, Kumbakonam, 2000.</td></tr>
<tr><td>5</td><td colspan="8">Shantha Kumar S.R.J., “Basic Mechanical Engineering”, Hi-tech Publications, Mayiladuthurai, 2000.</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology		Programme Code & Name			21: B.Tech. Information Technology		
Semester II								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210207P	ENGINEERING GRAPHICS LABORATORY	1	0	3	3	50	50	100
Objective(s)	Use of drawing board and mini drafter is not at all required, student's skill in the graphical communication of concepts and ideas in the design of engineering products are to be obtained by training them to understand objects by making free hand sketches of simple engineering objects and computer 2D and 3D modeling techniques.							

1	CONCEPTS AND CONVENTIONS	Total Hrs	4
Importance of graphics in engineering communication of concepts and ideas in the design of engineering products – conventional and computer methods – layout, orthographic and isometric representation techniques - relative merits and demerits – 2D and 3d modeling - specifications of size and layout of drawing sheets – Lettering and dimensioning – conventions followed.			
2	CURVES AND SHAPES USED IN ENGINEERING PRODUCTS	Total Hrs	4
Primitive and Prismatic shapes - Conics – ellipse, parabola and hyperbola – equations used and parametric interpretations – ellipsoid, paraboloid and hyperboloid – involutes and cycloids – applications - tangents and normals – mathematical requirements - their importance and applications to engineering products.			
3	FREE HAND SKETCHING PRACTICES	Total Hrs	7
Representation of Three Dimensional objects – Need for and importance of multiple views and their orientations – Concept of orthographic projection - Developing skills through free hand sketching of multiple views from pictorial views of objects – isometric (pictorial) representation of objects from multiple views – simple exercises to practice.			
4	DEVELOPMENT OF SURFACES – PRACTICES	Total Hrs	5
Development of lateral surfaces of simple and truncated solids – prisms, pyramids, cylinders and cones - freehand sketching practices - simple exercises to practice.			
5	2D DRAFTING	Total Hrs	20
Importance of 2D drafting – sketching, mirroring, scaling, copying (simple and multiple) dimensioning - wiring diagram and piping layout drawings - Practice of Computer Aided Drafting and dimensioning using appropriate software packages.			
6	SOLID MODELING	Total Hrs	20
3D modeling techniques - constructive solid geometry (CSG) and boundary representation (BRep) techniques - solid modeling of simple and moderately complex engineering products – table, chair, V-block, flange coupling (one) half, bolts and nuts, computer monitor, slotted angle rack and such other products - Practice of solid modeling and extraction of 2D views using appropriate software packages.			
Total hours to be taught			60

Reference (s) :

1	Dhananjay.A. Jolhe, "Engineering Drawing", Tata McGraw Hill Publishing Co., 2007.
2	K.V.Nataraajan "A text boo o Engineering Graphics", Dhanalakshmi Publishers, Chennai, 2006.
3	M.B. Shah and B.C. Rana, "Engineering Drawing", Pearson Education, 2005.
4	Luzadder and Duff, "Fundamentals of Engineering Drawing" Prentice Hall of India Pvt Ltd, XI Edition - 2001.
5	K.Venugopal, "Engineering Graphics", New Age International (P) Limited, 2002.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
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Semester II								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210208P	APPLIED CHEMISTRY LABORATORY	0	0	3	2	50	50	100
Objective	Educate the theoretical concepts Experimentally.							

(Any 10 experiments)

1.	Estimation of hardness of water by EDTA.	Total Hrs	3
2.	Estimation of alkalinity of water sample.	Total Hrs	3
3.	Estimation of chloride content in water sample.	Total Hrs	3
4.	Determination of dissolved oxygen in boiler feed water.	Total Hrs	3
5.	Determination of water of crystallization of a crystalline salt.	Total Hrs	3
6.	Conductometric titration of strong acid with strong base.	Total Hrs	3
7.	Conductometric titration of mixture of acids.	Total Hrs	3
8.	Precipitation titration by conductometric method.	Total Hrs	3
9.	Determination of strength of HCl by pH Meter.	Total Hrs	3
10.	Estimation of ferrous ion by potentiometric titration .	Total Hrs	3
11.	Determination of sodium and potassium in a water sample by flame photometry (Demo only).	Total Hrs	3
12.	Estimation of ferric ion by spectrophotometry (Demo only).	Total Hrs	3
Total hours to be taught		30	

Lab Manual :

1. Chemistry Lab Manual by R.Palanivelu, R.Parimalam and B.Srividhya

Reference :

1. J. Mendham, R.C. Denney, J.D. Barnes and N.J.K. Thomas, Vogel's Text book of Quantitative Chemical Analysis, 6th Edition, Pearson Education, 2004.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology	Programme Code &Name			21: B.Tech. Information Technology			
Semester II								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210209P	PROGRAMMING LABORATORY	0	0	3	2	50	50	100

LIST OF EXERCISES

1. Write a C program to print Pascal's triangle.
2. Write a C program to print the sine and cosine series.
3. Write a C program to perform Matrix multiplication.
4. Write a C program to prepare and print the sales report.
5. Write a C program to perform string manipulation functions like string concatenations, comparison, find the length and string copy without using library functions.
6. Write a C program to arrange names in alphabetical order.
7. Write a C program to calculate the mean, variance and standard deviation using functions.
8. Write a C program to perform sequential search using functions.
9. Write a C program to print the Fibonacci series and to calculate the factorial of the given number using functions.
10. Write a C program to print the mark sheet of n students using structures.
11. Write a C program for mark sheet processing using files.
12. Write a C program to merge the given two files

Software requirements:

Operating System : Windows / Unix clone
Compiler : C compiler

K.S.Rangasamy College of Technology - Autonomous Regulation			R 2008
Department	Information Technology	Program code & Name	21: B.Tech. Information Technology

Semester II

Course Code	Course Name	Hours/Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210210P	COMPREHENSION – I	0	0	3	0	100	00	100

Objective(s)

i) To comprehend the semester subjects studied.
ii) To improve the technical knowledge of the students.

Methodology

1. For each subject 200 Keywords/Important words or terms (5 units x 40 words) are to be prepared.
2. These 200 keywords are to be printed in double column (2 x 50 words) and in 2 pages and is to be handed over to each student for all the subjects.
3. The staff who is handling the subject in the previous semester will handle the respective discussion period (3 periods/semester) as given below.
4. The staff will explain and question the students using 'W' and 'H' type questions linking the keywords.
5. In a similar way, the students have to prepare themselves for all the keywords

Execution

The Schedule for Conduct of Comprehension Subject.

Week	Activity		
	First 1½ Period subject (No. of units)	Next 1½ period Subject (No. of units)	Hours
W1	S1 (2)	S2 (2)	3
W2	S3 (2)	S4 (2)	3
W3	S5 (2)	S6 (2)	3
W4	Test-I (Portion:2 units in each subject)		1
W5	S1 (3)	S2 (3)	3
W6	S3 (3)	S4 (3)	3
W7	S5 (3)	S6 (3)	3
W8	Test-II (Portion:3 units in each subject)		1
W9	Discussion		3
W10	Test-III (All 5 units and all subject)		1
Total			24

Evaluation

- It is a two credit (3 hrs /week) Laboratory type course.
- Only continuous Assessment (CA) and No End Semester examination.
- Each test will carry100 questions distributed among the subjects in respective units

Component	Weightage
Test – I	25
Test – II	25
Test – III	50
Total	100

S1	08210101G - Technical English
S2	08210102G - Engineering Mathematics I
S3	08210103G - Applied Physics
S4	08210104G - Applied Chemistry
S5	08210105S - Basics of Electrical Engineering
S6	08210106S - Basics of Electronics Engineering

(For the candidates admitted from 2009-2010 onwards)

<table>
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<tr><td>Department</td><td colspan="2">Information Technology</td><td colspan="2">Program code & Name</td><td colspan="4">21: B.Tech.
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<tr><td colspan="9">Semester II</td></tr>
<tr><td rowspan="2">Course Code</td><td colspan="2" rowspan="2">Course Name</td><td colspan="3">Hours/Week</td><td>Credit</td><td colspan="3">Maximum Marks</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td>08210210P</td><td colspan="2">COMPREHENSION – I</td><td>0</td><td>0</td><td>3</td><td>0</td><td>100</td><td>00</td><td>100</td></tr>
<tr><td>Objective(s)</td><td colspan="8">iii) To comprehend the semester subjects studied.
iv) To improve the technical knowledge of the students.</td></tr>
<tr><td>Methodology</td><td colspan="8">1. For each subject 200 Keywords/Important words or terms (5 units x 40 words) are to be prepared.
2. These 200 keywords are to be printed in double column (2 x 50 words) and in 2 pages and is to be handed over to each student for all the subjects.
3. The staff who is handling the subject in the current semester will handle the respective discussion period (3 periods/semester) as given below.
4. The staff will explain and question the students using ‘W’ and ‘H’ type questions linking the keywords.
5. In a similar way, the students have to prepare themselves for all the keywords</td></tr>
<tr><td rowspan="13">Execution</td><td colspan="8">The Schedule for Conduct of Comprehension Subject.</td></tr>
<tr><td>Week</td><td colspan="7">Activity</td></tr>
<tr><td></td><td colspan="3">First 1½ Period subject (No. of units)</td><td colspan="2">Next 1½ period Subject (No. of units)</td><td colspan="2">Hours</td></tr>
<tr><td>W1</td><td colspan="3">S1 (2)</td><td colspan="2">S2 (2)</td><td colspan="2">3</td></tr>
<tr><td>W2</td><td colspan="3">S3 (2)</td><td colspan="2">S4 (2)</td><td colspan="2">3</td></tr>
<tr><td>W3</td><td colspan="3">S5 (2)</td><td colspan="2">S6 (2)</td><td colspan="2">3</td></tr>
<tr><td>W4</td><td colspan="5">Test-I (Portion:2 units in each subject)</td><td colspan="2">1</td></tr>
<tr><td>W5</td><td colspan="3">S1 (3)</td><td colspan="2">S2 (3)</td><td colspan="2">3</td></tr>
<tr><td>W6</td><td colspan="3">S3 (3)</td><td colspan="2">S4 (3)</td><td colspan="2">3</td></tr>
<tr><td>W7</td><td colspan="3">S5 (3)</td><td colspan="2">S6 (3)</td><td colspan="2">3</td></tr>
<tr><td>W8</td><td colspan="5">Test-II (Portion:3 units in each subject)</td><td colspan="2">1</td></tr>
<tr><td>W9</td><td colspan="5">Discussion</td><td colspan="2">3</td></tr>
<tr><td>W10</td><td colspan="5">Test-III (All 5 units and all subject)</td><td colspan="2">1</td></tr>
<tr><td colspan="6">Total</td><td colspan="2">24</td></tr>
<tr><td rowspan="6">Evaluation</td><td colspan="8">• It is a two credit (3 hrs /week) Laboratory type course.
• Only continuous Assessment (CA) and No End Semester examination.
• Each test will carry100 questions distributed among the subjects in respective units</td></tr>
<tr><td>Component</td><td colspan="7">Weightage</td></tr>
<tr><td>Test – I</td><td colspan="7">25</td></tr>
<tr><td>Test – II</td><td colspan="7">25</td></tr>
<tr><td>Test – III</td><td colspan="7">50</td></tr>
<tr><td>Total</td><td colspan="7">100</td></tr>
<tr><td>S1</td><td colspan="8">08210201G - Communication Skills</td></tr>
<tr><td>S2</td><td colspan="8">08210202G - Engineering Mathematics II</td></tr>
<tr><td>S3</td><td colspan="8">08210203G - Material Science</td></tr>
<tr><td>S4</td><td colspan="8">08210204G - Environmental Science</td></tr>
<tr><td>S5</td><td colspan="8">08210205G - Fundamentals of Programming</td></tr>
<tr><td>S6</td><td colspan="8">08210206S - Basics of Civil & Mechanical Engg.</td></tr>
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K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
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Semester III								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210301G	ENGINEERING MATHEMATICS III	3	1	0	4	50	50	100
Objective(s)	The course objective is to impact analytical skills to the students in the areas of boundary value problems and transform techniques. This will be necessary for their effective studies in a large number of engineering subjects like heat conduction, communication systems, electro-optics and electromagnetic theory. The course will also serve as a prerequisite for post graduate and specialized studies and research.							
1	PARTIAL DIFFERENTIAL EQUATIONS				Total Hrs	12		
Formation of partial differential equations by elimination of arbitrary constants and arbitrary functions – Solution of standard types of first order partial differential equations – Lagrange's linear equation – Linear partial differential equations of second and higher order with constant coefficients.								
2	FOURIER SERIES				Total Hrs	12		
Dirichlet's conditions – General Fourier series – Odd and even functions – Half range sine series – Half range cosine series –Parseval's Identity – Harmonic Analysis.								
3	BOUNDARY VALUE PROBLEMS				Total Hrs	12		
Classification of second order quasi linear partial differential equations- Solutions of one dimensional wave equation – One dimensional heat equation - Fourier series solutions in Cartesian coordinates.								
4	FOURIER TRANSFORM				Total Hrs	12		
Fourier transform pair- Sine and Cosine transforms– Properties – Transforms of simple functions – Convolution theorem- Parseval's Identity – Problems.								
5	Z -TRANSFORM AND DIFFERENCE EQUATIONS				Total Hrs	12		
Z-transform - Elementary properties – Initial and final value theorem-Inverse Z – transform – Partial fraction method – Residue method - Convolution theorem - Solution of difference equations using Z - transform.								
Total hours to be taught						60		
Text book(s): :								
1	Veerarajan.T, "Engineering mathematics-III", Tata McGraw Hill Publishing Company Limited, New Delhi.							
2	Grewal, B.S., "Higher Engineering Mathematics", Thirty Sixth Edition, Khanna Publishers, Delhi, 2001.							
References :								
1	Narayanan, S., Manicavachagom Pillay, T.K. and Ramaniah, G., "Advanced Mathematics for Engineering Students", Volumes II and III, S. Viswanathan (Printers and Publishers) Pvt. Ltd. Chennai, 2002.							
2	Kandasamy, P., Thilagavathy, K., and Gunavathy, K., "Engineering Mathematics Volume III", S. Chand & Company ltd., New Delhi, 1996.							

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<tr><td colspan="2" rowspan="2">Course Code</td><td colspan="2" rowspan="2">Course Name</td><td colspan="3">Hours / Week</td><td>Credit</td><td colspan="2">Maximum Marks</td><td></td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210302C</td><td colspan="2">SIGNALS AND SYSTEMS</td><td>3</td><td>1</td><td>0</td><td>4</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To understand the representation and classification of signals, understand the basics of signal analysis using transforms, analyze the linear time invariant systems using Fourier, Laplace Transforms and state equations, study the analysis of Discrete Time signals using DFT and Z-transforms, find the frequency response of linear time invariant discrete time system using FFT and Z-transform analysis.</td></tr>
<tr><td>1</td><td colspan="5">CLASSIFICATION OF SIGNALS AND SYSTEMS</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="9">Continuous time signals (CT signals), discrete time signals (DT signals) - step, Ramp, Pulse, Impulse, Exponential, Classification of CT and DT signals - periodic and aperiodic, Random signals, CT systems and DT systems, Classification of systems – Linear Time Invariant Systems.</td></tr>
<tr><td>2</td><td colspan="5">ANALYSIS OF CT SIGNALS</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="9">Fourier series analysis, Spectrum of CT signals, Fourier Transform and Laplace Transform in Signal Analysis.</td></tr>
<tr><td>3</td><td colspan="5">LTI-CT SYSTEMS</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="9">Differential equation, Block diagram representation, Impulse response, Convolution Integral, Frequency response, Fourier Methods and Laplace transforms in analysis, State equations and Matrix.</td></tr>
<tr><td>4</td><td colspan="5">ANALYSIS OF DT SIGNALS</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="9">Spectrum of DT Signals, Discrete Time Fourier Transform (DTFT), Discrete Fourier Transform (DFT), Properties of Z-transform in signal analysis.</td></tr>
<tr><td>5</td><td colspan="5">LTI-DT SYSTEMS</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="9">Difference equations, Block diagram representation, Impulse response, Convolution SUM, Frequency response, FFT and Z-transform analysis, State variable equation and Matrix.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">60</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">Alan V. Oppenheim, Alan S. Willsky with S.Hamid Nawab, “Signals & Systems”, Pearson / Prentice Hall of India Pvt. Ltd., 2003.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">K.Lindner, “Signals and Systems”, McGraw-Hill International, 1999.</td></tr>
<tr><td>2</td><td colspan="8">Simon Haykin and Barry Van Veen, “Signals and Systems”, John Wiley & Sons, Inc., 1999.</td></tr>
<tr><td>3</td><td colspan="8">P.Ramesh Babu, R.Ananda Natarajan, “Signals and Systems”, Scitech publications, 2006.</td></tr>
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<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210303C</td><td colspan="2">COMPUTER ARCHITECTURE</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To have a thorough understanding of the basic structure and operation of a digital computer, discuss in detail the operation of the arithmetic unit including the algorithms & implementation of fixed-point and floating-point addition, subtraction, multiplication & division, study in detail the different types of control and the concept of pipelining, study the hierarchical memory system including cache memories, study the different ways of communicating with I/O devices and standard I/O interfaces.</td></tr>
<tr><td>1</td><td colspan="5">BASIC STRUCTURE OF DIGITAL COMPUTERS</td><td colspan="2">Total Hrs</td><td>10</td></tr>
<tr><td colspan="8">Functional units- Basic Operational Concepts - Bus Structures – Design of digital circuits – simplification of Boolean circuits using K – map and tabulation methods – Design of simple combinational circuits for arithmetic operations, code conversion – Design of Synchronous sequential circuits, synchronous MOD counter, shift register.</td></tr>
<tr><td>2</td><td colspan="5">ARITHMETIC</td><td colspan="2">Total Hrs</td><td>8</td></tr>
<tr><td colspan="8">Addition and subtraction of signed numbers – Design of fast adders – multiplication of positive numbers- signed operand multiplication and fast multiplication – Integer division – floating point numbers and operations.</td></tr>
<tr><td>3</td><td colspan="5">BASIC PROCESSING UNIT</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Fundamental concepts – Execution of a complete Instruction – Multiple bus organization – Hardwired control – microprogrammed control - Pipelining – Basic concepts – data hazards – instruction hazards – influence on Instruction sets – Data path and control consideration – Superscalar operation.</td></tr>
<tr><td>4</td><td colspan="5">MEMORY SYSTEM</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Basic concepts – decoders and encoders – multiplexers and demultiplexers - semiconductor RAMs, ROMs – Speed, size and cost – cache memories - Performance consideration.</td></tr>
<tr><td>5</td><td colspan="5">I/O ORGANIZATION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Accessing I/O devices – Enabling and disabling Interrupts – Direct Memory Access – Buses – Interface Circuits – Standard I/O Interfaces (PCI, SCSI, USB).</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="8">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="7">Carl Hamacher, Zvonko Vranesic and Safwat Zaky, “Computer Organization” 5th Ed, McGraw Hill, 2002.</td></tr>
<tr><td>2</td><td colspan="7">M.Morris Mano,” Digital Design,” third edition, Pearson Education, 2002.</td></tr>
<tr><td colspan="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">William Stallings, “Computer Organization & Architecture – Designing for Performance”, 6th Ed., Pearson Education, 2003 reprint.</td></tr>
<tr><td>2</td><td colspan="7">David A.Patterson and John L.Hennessy, “Computer Organization & Design, the hardware / software interface”, 2nd Ed, Morgan Kaufmann, 2002 reprint.</td></tr>
<tr><td>3</td><td colspan="7">John P.Hayes, “Computer Architecture & Organization”, 3rd Ed, McGraw-Hill, 1998.</td></tr>
<tr><td>4</td><td colspan="7">Charles H.Roth, Jr. “fundamentals of Lock Design,” Fourth edition, Jaico Publishing House, 2000.</td></tr>
<tr><td>5</td><td colspan="7">Donald D.Givone, “Digital Principles and Design,” Tat McGraw-Hill, 2003.</td></tr>
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<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td>08210304C</td><td>DATA STRUCTURES</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td>Objective(s)</td><td colspan="8">To learn the systematic way of solving problems, understand the different methods of organizing large amounts of data, learn to program in C, efficiently implement the different data structures, efficiently implement solutions for specific problems</td></tr>
<tr><td>1</td><td colspan="5">PROBLEM SOLVING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Problem solving – Top-down Design – Implementation – Efficiency – Analysis – Sample algorithms.</td></tr>
<tr><td>2</td><td colspan="5">LISTS, STACKS AND QUEUES</td><td colspan="2">Total Hrs</td><td>8</td></tr>
<tr><td colspan="9">Abstract Data Type (ADT) – The List ADT – The Stack ADT – The Queue ADT</td></tr>
<tr><td>3</td><td colspan="5">TREES</td><td colspan="2">Total Hrs</td><td>10</td></tr>
<tr><td colspan="9">Preliminaries – Binary Trees – The Search Tree ADT – Binary Search Trees – AVL Trees – Tree Traversals – Hashing – General Idea – Hash Function – Separate Chaining – Open Addressing – Linear Probing – Priority Queues (Heaps) – Model – Simple implementations – Binary Heap</td></tr>
<tr><td>4</td><td colspan="5">SORTING AND SEARCHING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Preliminaries – Insertion Sort – Shellsort – Heapsort – Mergesort – Quicksort – External Sorting – Linear Search and Binary Search – Complexity Analysis.</td></tr>
<tr><td>5</td><td colspan="5">GRAPHS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Definitions – Topological Sort – Shortest-Path Algorithms – Unweighted Shortest Paths – Dijkstra’s Algorithm – Minimum Spanning Tree – Prim’s Algorithm – Applications of Depth-First Search – Undirected Graphs – Biconnectivity</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="9">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="8">R. G. Dromey, “How to Solve it by Computer” (Chaps 1-2), Prentice-Hall of India, 2006</td></tr>
<tr><td>2</td><td colspan="8">M. A. Weiss, “Data Structures and Algorithm Analysis in C”, 2nd ed, Pearson Education Asia, 2004 (chaps 3, 4.1-4.4 (except 4.3.6), 4.6, 5.1-5.4.1, 6.1-6.3.3, 7.1-7.7 (except 7.2.2, 7.4.1, 7.5.1, 7.6.1, 7.7.5, 7.7.6), 7.11, 9.1-9.3.2, 9.5-9.5.1, 9.6-9.6.2, 9.7).</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Y. Langsam, M. J. Augenstein and A. M. Tenenbaum, “Data Structures using C”, Pearson Education Asia, 2004.</td></tr>
<tr><td>2</td><td colspan="8">A.Chitra and P.T.Rajan, “Data Structures”, Vijay Nicole, 2006.</td></tr>
<tr><td>3</td><td colspan="8">ISRD Group, “Data Structures using C”, Tata McGraw Hill, 2006.</td></tr>
</table>

<table>
<tr><td colspan="8">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2008</td></tr>
<tr><td colspan="2">Department</td><td colspan="2">Information Technology</td><td colspan="2">Programme Code &Name</td><td colspan="3">21: B.Tech.
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<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210305C</td><td colspan="2">PRINCIPLES OF COMMUNICATION</td><td>3</td><td>1</td><td>0</td><td>4</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To have understanding about different types of AM Communication systems (Transmitters & Receivers), study in detail the different types of FM transmitters & Receivers and PM Transmitters and Receivers, gain knowledge about different digital modulation techniques for digital transmission, have knowledge about base band transmission ISI and distortion free base band transmission, know the spread spectrum modulation techniques and different multiple access methods.</td></tr>
<tr><td>1</td><td colspan="5">AMPLITUDE MODULATION: TRANSMISSION AND RECEPTION</td><td colspan="2">Total Hrs</td><td>9+3</td></tr>
<tr><td colspan="8">Principles of amplitude modulation – AM envelope, frequency spectrum and bandwidth, modulation index and percent modulation, AM power distribution, AM modulator circuits – low level AM modulator, medium power AM modulator, AM transmitters – low level transmitters, high level transmitters, Receiver parameters.
AM reception: AM receivers – TRF, Superheterodyne receivers, Double Conversion AM receivers.</td></tr>
<tr><td>2</td><td colspan="5">ANGLE MODULATION: TRANSMISSION AND RECEPTION</td><td colspan="2">Total Hrs</td><td>9+3</td></tr>
<tr><td colspan="8">Angle Modulation – FM and PM waveforms, phase deviation and modulation index, frequency deviation, frequency spectrum of a angle modulated waves, Bandwidth requirement, Average power FM and PM modulators – Direct FM and PM, Direct FM transmitters, Angle modulation Vs. amplitude modulation.
FM receivers: Direct FM demodulators, Frequency Vs. phase Modulation.</td></tr>
<tr><td>3</td><td colspan="5">DIGITAL MODULATION TECHNIQUES</td><td colspan="2">Total Hrs</td><td>9+3</td></tr>
<tr><td colspan="8">Introduction, ASK, Binary PSK, DPSK, Differentially encoded PSK, QPSK, Binary FSK, Duobinary encoding – Performance comparison of various systems of Digital Modulation.</td></tr>
<tr><td>4</td><td colspan="5">BASEBAND DATA TRANSMISSION</td><td colspan="2">Total Hrs</td><td>9+3</td></tr>
<tr><td colspan="8">Sampling theorem, Quadrature sampling of bandpass signals, reconstruction of message from its samples, Aliasing , Discrete PAM signals, ISI Nyquist Criterion for Distortionless baseband binary transmission, eye pattern, baseband M-ary PAM systems.</td></tr>
<tr><td>5</td><td colspan="5">SPREAD SPECTRUM AND MULTIPLE ACCESS TECHNIQUES</td><td colspan="2">Total Hrs</td><td>9+3</td></tr>
<tr><td colspan="8">Introduction, Pseudo-noise sequence, DS spread spectrum with coherent binary PSK, Processing gain, FH spread spectrum, multiple access techniques, TDMA,FDMA,SDMA and CDMA, Comparison of various multiple access techniques.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td>60</td></tr>
<tr><td colspan="8">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="7">Wayne Tomasi, “Electronic Communication Systems: Fundamentals Through Advanced”, Pearson Education, 2007. (UNIT I Chapters – 3, 4; UNIT II: Chapters-6,7; UNIT III Chapters-12).</td></tr>
<tr><td>2</td><td colspan="7">Simon Haykin, Digital Communications, John Wiley & Sons, 2003. (UNIT IV Chapters 3,4; UNIT V Chapters – 7,8)</td></tr>
<tr><td colspan="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">Simon Haykin, Communication Systems, John Wiley & Sons, 4th edn., 2001.</td></tr>
<tr><td>2</td><td colspan="7">Taub & Schilling, Principles of Communication Systems, TMH, 2nd edn., 2003.</td></tr>
<tr><td>3</td><td colspan="7">Martin S.Roden, Analog and Digital Communication System, PHI, 3rd edn. 2002.</td></tr>
<tr><td>4</td><td colspan="7">Blake, Electronic Communication Systems, Thomson Delman, 2nd edn., 2005.</td></tr>
</table>

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<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210306C</td><td>ADVANCED C & C++</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">Since C and C++ play a predominant role in software development, it is felt that the following objectives can be achieved after studying this subject, review of advanced features of C, understand the concepts of Object Oriented Programming, write simple applications using C++.</td></tr>
<tr><td>1</td><td colspan="5">ADVANCED C</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Review of Pointers, Structures, Unions and File Operations – Simple Applications.</td></tr>
<tr><td>2</td><td colspan="5">OVERVIEW OF C++</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Principles of Object-Oriented Programming – Beginning with C++ - Tokens, Expressions and Control Structures - Functions in C++.</td></tr>
<tr><td>3</td><td colspan="5">CONCEPTS OF OBJECT-ORIENTED PROGRAMMING</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Classes and Objects – Function Overloading, Copy Constructors and Default arguments. - Operator Overloading –Inheritance</td></tr>
<tr><td>4</td><td colspan="5">POINTERS AND FILE OPERATIONS</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Pointers, References and Dynamic Memory Allocation operators - Virtual Functions and Polymorphism – C++ I/O System Basics: C++ Streams , Formatted I/O. – C++ File I/O.</td></tr>
<tr><td>5</td><td colspan="5">ADDITIONAL FEATURES</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Templates – Exception handling – Standard Template Library: Overview, Container Class, Vectors, Lists, Strings.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="8">Yashavant Kanetkar, “Let us C”, BPB Publications, 2006.</td></tr>
<tr><td>2</td><td colspan="8">Herbert Schildt, “The Complete Reference C++”, Tata McGraw Hill, Fourth Edition 2008.</td></tr>
<tr><td colspan="9">Reference :</td></tr>
<tr><td>1</td><td colspan="8">E. Balagurusamy, “Object Oriented Programming with C++”, Tata McGraw Hill, Fourth Edition 2008.</td></tr>
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K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology	Programme Code &Name			21: B.Tech. Information Technology			
Semester III								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210307P	DIGITAL AND HARDWARE LABORATORY	0	0	3	2	50	50	100

LIST OF EXPERIMENTS

1. Design and implementation of combinational circuits using basic gates for code converters.
2. Design and implementation of 4-bit binary adder / subtractor using MSI devices.
3. Design and implementation of magnitude comparator.
4. Design and implementation of application using multiplexers and demultiplexers.
5. Design and implementation of Shift registers.
6. Design and implementation of Asynchronous and Synchronous counters.
7. Study of Motherboard.
8. Study of SMPS.
9. (i) Configuring BIOS setup program and practicing trouble shooting of typical problems using BIOS utility.

   (ii) a. Install Hard Disk
   b. Configure CMOS-Setup
   c. Master / Slave / IDE Devices

10. (i) Printer installation
    a. Install and Configure Dot-matrix and Laser printer
    b. Trouble shoot the above printers

    (ii) Install Audio / Video devices
    a. Microphone Speaker Headset and Web camera

11. (i) Install and configure Scanner
    (ii) Modem and TV tunes card Installations
    a. Install and configure Internal and External Modem
    b. Install and configure TV tuner card.

12. a. Partition Hard Disk using FDISK and
    b. Format Hard Disk
    c. Windows XP-Operating System Installation.
    d. Identify problems with Software installation using drivers available in the motherboard CD

13. a. Identify the connectors using wireless devices
    b. Bluetooth setup.

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Semester III								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210308P	DATA STRUCTURES LABORATORY	0	0	3	2	50	50	100
Objective(s)	To teach the students to write programs in C, implement the various data structures as Abstract Data Types, write programs to solve problems using the ADTs							

IMPLEMENT THE FOLLOWING EXERCISES USING C:

1. Array implementation of List Abstract Data Type (ADT)
2. Linked list implementation of List ADT
3. Array implementations of Stack ADT
4. Linked list implementations of Stack ADT
5. Implement the application for checking 'Balanced Parenthesis' using array implementation of Stack ADT.
6. Implement the application for checking 'Balanced Parenthesis' using linked list implementation of Stack ADT.
7. Implement the application for 'Evaluating Postfix Expressions' using array
8. Queue ADT implementation.
9. Circular Queue implementation.
10. Search Tree ADT - Binary Search Tree implementation.
11. Heap Sort
12. Quick Sort
13. Linear Search
14. Binary Search

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Department	Information Technology	Programme Code &Name			21: B.Tech. Information Technology			
Semester III								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210309P	ADVANCED C & C++ LABORATORY	0	0	3	2	50	50	100

I. Programs using C

1. Program using Structures with pointers
2. Program using File handling functions

II. Programs using C++

3. Programs Using Functions with default and const arguments
4. Implementation of Call by Value, Call by Address and Call by Reference
5. Simple Classes for understanding objects, member functions, Constructors and Destructors
6. Classes with primitive data members
7. Classes with arrays as data members
8. Program using Operator Overloading including Unary and Binary Operators
9. Program using Function Overloading
10. Program using Inheritance
11. Multilevel Inheritance
12. Multiple Inheritance
13. Hierarchical Inheritance
14. Hybrid Inheritance
15. Program using Virtual functions and Virtual Base Classes
16. Program using File Handling
17. Sequential access
18. Random access
19. Program using Templates
20. Program using exception Handling Mechanism
21. Program using Manipulating String Objects using pointers.

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<tr><td>Department</td><td colspan="3">Information Technology</td><td colspan="2">Programme code & Name</td><td colspan="3">21: B.Tech.
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<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td>08210310P</td><td colspan="3">COMPREHENSION – II</td><td>0</td><td>0</td><td>3</td><td>0</td><td>100</td><td>00</td><td>100</td></tr>
<tr><td>Objective(s)</td><td colspan="8">i) To comprehend the semester subjects studied.
ii) To improve the technical knowledge of the students.</td></tr>
<tr><td>Methodology</td><td colspan="8">1. For each subject 200 Keywords / Important words or terms (5 units x 40 words) are to be prepared.
2. These 200 keywords are to be printed in double column (2x50 words) and in 2 pages and is to be handed over to each student for all the subjects.
3. The staff who is handling the subject in the current semester will handle the respective discussion period (3 periods/semester) as given below.
4. The staff will explain and question the students using ‘W’ and ‘H’ type questions linking the keywords.
5. In a similar way the students have to prepare themselves for all the keywords</td></tr>
<tr><td rowspan="14">Execution</td><td colspan="8">The Schedule for Conduct of Comprehension Subject.</td></tr>
<tr><td colspan="2">Week</td><td colspan="6">Activity</td></tr>
<tr><td colspan="2"></td><td colspan="3">First 1½ Period subject (No. of units)</td><td colspan="2">Next 1½ period Subject (No. of units)</td><td>Hours</td></tr>
<tr><td colspan="2">W1</td><td colspan="3">S1 (2)</td><td colspan="2">S2 (2)</td><td>3</td></tr>
<tr><td colspan="2">W2</td><td colspan="3">S3 (2)</td><td colspan="2">S4 (2)</td><td>3</td></tr>
<tr><td colspan="2">W3</td><td colspan="3">S5 (2)</td><td colspan="2">S6 (2)</td><td>3</td></tr>
<tr><td colspan="2">W4</td><td colspan="5">Test-I (Portion:2 units in each subject)</td><td>1</td></tr>
<tr><td colspan="2">W5</td><td colspan="3">S1 (3)</td><td colspan="2">S2 (3)</td><td>3</td></tr>
<tr><td colspan="2">W6</td><td colspan="3">S3 (3)</td><td colspan="2">S4 (3)</td><td>3</td></tr>
<tr><td colspan="2">W7</td><td colspan="3">S5 (3)</td><td colspan="2">S6 (3)</td><td>3</td></tr>
<tr><td colspan="2">W8</td><td colspan="5">Test-II (Portion:3 units in each subject)</td><td>1</td></tr>
<tr><td colspan="2">W9</td><td colspan="5">Discussion</td><td>3</td></tr>
<tr><td colspan="2">W10</td><td colspan="5">Test-III (All 5 units and all subject)</td><td>1</td></tr>
<tr><td colspan="2"></td><td colspan="5">Total</td><td>24</td></tr>
<tr><td rowspan="6">Evaluation</td><td colspan="8">• It is a two credit (3 hours /week) Laboratory type course.
• Only continuous Assessment (CA) and No End Semester examination.
• Each test will carry100 questions distributed among the subjects in respective units</td></tr>
<tr><td colspan="2">Component</td><td colspan="6">Weightage</td></tr>
<tr><td colspan="2">Test – I</td><td colspan="6">25</td></tr>
<tr><td colspan="2">Test – II</td><td colspan="6">25</td></tr>
<tr><td colspan="2">Test – III</td><td colspan="6">50</td></tr>
<tr><td colspan="2">Total</td><td colspan="6">100</td></tr>
<tr><td>S1</td><td colspan="8">08210301S– Engineering Mathematics III</td></tr>
<tr><td>S2</td><td colspan="8">08210302C – Signals and Systems</td></tr>
<tr><td>S3</td><td colspan="8">08210303C – Computer Architecture</td></tr>
<tr><td>S4</td><td colspan="8">08210304C – Data Structure</td></tr>
<tr><td>S5</td><td colspan="8">08210305C – Principles of Communication</td></tr>
<tr><td>S6</td><td colspan="8">08210306C – Advanced C & C++</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology	Programme Code & Name			21: B.Tech. Information Technology			
Semester III								
Course Code	Course Name	Hours/Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210311P	CAREER COMPETENCY DEVELOPMENT I	0	0	2	0	100	00	100
Objective(s)	i. To improve the skill level of students. ii. To improve the employability of students							

1	Aptitude Skills	Hrs
a. Arithmetic ability : Average - Numbers and ages – Percentage - Profit & loss - Time and work - Time and distance - Trains b. Verbal Reasoning : Series - Analogy - Classification c. Nonverbal Reasoning : Series – Analogy		8
2	Programming Skills	
C Language : Basics of C - Data Types - Conditional and Looping Statements – Functions - Arrays and Strings - Structures and Unions		6
3	Written Communication Skills	
Error correction in the usage of noun, pronoun, adjective, Verb, Adverb & Prepositions – Comprehension – Introduction to oral communication.		4
Evaluation I – Written Test		2
4	Oral Communication Skills	
Evaluation II – Two Minutes talk (each section is divided into 3 groups of 22 each)		2
Evaluation III – Two minutes Extempore Speech (each section is divided into 3 groups of 22 each)		2
5	Technical Paper Presentation	
Evaluation IV - Technical Paper Presentation I (Association Session)		8
	Total	32

Reference(s):	
1	R.S.Aggarwal , “Quantitative Aptitude”, S.Chand & Company Ltd., New Delhi, Reprint 2007 (Twice) (Ch - 6, 7, 8, 10, 11, 15, 17 & 18) (unit – I)
2	R.S.Aggarwal , “A Modern Approach to verbal & Non – verbal Reasoning”, S.Chand & Company Ltd, New Delhi, 2008, Part I – Section I (Ch - 1,2 & 3), Part - II (Ch - 1 & 2) (unit – I)
3	Yashavant Kanetkar, “ Let us ‘C’ ”, BPB Publications, New Delhi, 2002 (Ch -1, 3, 4, 5, 6, 8, 9 and 10) (unit – II)
4	CCD Guide by English Department of KSRCT, 2008 (Unit – III, IV & V)

EVALUATION CRITERIA

S.No.	Particular	Test Portion	Marks
1	Evaluation I Written Test	Unit I – OQ – 50, Unit II – OQ – 30 Unit III – OQ 20	50
2	Evaluation II Two Minutes Talk	P – 10 Marks, C – 5 Marks	15
3	Evaluation III Two Minutes speech Extempore	P – 10 Marks, C – 5 Marks	15
4	Evaluation IV Technical Paper Presentation	P – 10 Marks, C – 5 Marks, Q – 5	20
P – Presentation C – Content Q – Queries OQ – Objective type question T – Total			T = 100

Note :

1. Question paper and keys will be supplied by the training cell for written test for Evaluation I
2. Respective Departments will conduct Evaluation I, II, III & IV, correct and submit the marks obtained by the students to the Training Cell.
3. HODs will display about 50 topics for oral communication.
4. All training & tests will be conducted on odd Saturdays, Session of 2 periods in FN & Session of 2 periods in AN & Association Session.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
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Semester IV								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210401C	PROBABILITY AND STATISTICS	3	1	0	4	50	50	100
Objective(s)	At the end of the course, the students would have a fundamental knowledge of the basic probability concepts, have a well – founded knowledge of standard distributions which can describe real life phenomena, acquire skills in handling situations involving more than one random variable and functions of random variables, be introduced to the notion of sampling distributions and have acquired knowledge of statistical techniques useful in making rational decision in management problems, be exposed to statistical methods designed to contribute to the process of making scientific judgments in the face of uncertainty and variation, have learnt the basics of Wavelet transform and its different types.							
1	PROBABILITY AND RANDOM VARIABLE				Total Hrs	9+3		
Axioms of probability - Conditional probability - Total probability - Bayes theorem - Random variable - Probability mass function - Probability density functions - Properties- Moments - Moment generating functions and their properties.								
2	STANDARD DISTRIBUTIONS & WAVELET TRANSFORMS				Total Hrs	9+3		
Binomial, Poisson, Geometric, Negative Binomial, Uniform, Exponential, Gamma, Weibull and Normal distributions and their properties. Introduction to wavelet transforms-Definition-Discrete and continuous wavelet transforms-Haar scaling function φ(t)-Haar Wavelet function φ(t) – Orthogonality of (t) and ψ(t).								
3	TWO DIMENSIONAL RANDOM VARIABLES				Total Hrs	9+3		
Joint distributions - Marginal and conditional distributions – Covariance - Correlation and Regression - Transformation of random variables - Central limit theorem.								
4	TESTING OF HYPOTHESIS				Total Hrs	9+3		
Sampling distributions – Testing of hypothesis for mean, variance, proportions and differences using Normal, t, Chi-square and F distributions - Tests for independence of attributes and Goodness of fit.								
5	DESIGN OF EXPERIMENTS				Total Hrs	9+3		
Analysis of variance-One way classification-CRD -Two - way classification - RBD - Latin square.								
Total hours to be taught						60		
Text book (s) :								
1	Ross. S., “A first Course in Probability”, Fifth Edition, Pearson Education, Delhi 2002. (Chapters 2 to 8)							
2	Johnson. R. A., “Miller & Freund’s Probability and Statistics for Engineers”, Sixth Edition, Pearson Education, Delhi, 2000. (Chapters 7, 8, 9, 12)							
Reference (s) :								
1	Walpole, R. E., Myers, R. H. Myers R. S. L. and Ye. K, “Probability and Statistics for Engineers and Scientists”, Seventh Edition, Pearsons Education, Delhi , 2002.							
2	Lipschutz. S and Schiller. J, “Schaum’s outlines - Introduction to Probability and Statistics”, McGraw-Hill, New Delhi, 1998.							
3	Gupta, S.C, and Kapur, J.N., “Fundamentals of Mathematical Statistics”, Sultan Chand, Ninth Edition, New Delhi, 1996.							
4	Ingrid Daubechies, “Lectures on Wavelets”, Society for Industrial and Applied Mathematics, 1992, ISBN 0-89871-274-2.							

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
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Semester IV								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210402C	SOFTWARE ENGINEERING	3	0	0	3	50	50	100
Objective(s)	To be aware of Different life cycle models, requirement dictation process, analysis modeling and specification, architectural and detailed design methods, implementation and testing strategies, project planning and management, use of CASE tools.							
1	SOFTWARE PROCESS				Total Hrs	9		
A Generic View Of Processes – Process Models: Waterfall – Incremental – Evolutionary Process Model – Component Based Development. Agile Process – Agile Models: Adaptive Software Development – System Engineering Hierarchy – Risk Management: Risk Identification – Risk Projection – Risk Refinement.								
2	REQUIREMENT ANALYSIS				Total Hrs	9		
Requirement Engineering: Tasks, Initiating The Requirements Engineering Process, Eliciting Requirements, Developing Use Cases – Negotiating Requirements – Validating Requirements – Building The Analysis Models: Scenario Based Modeling – Data Modeling Concepts – Flow Oriented Model – Class Based Modeling – Behavioral Model.								
3	SOFTWARE DESIGN				Total Hrs	9		
Design Concepts – Design Models – Pattern Based Software Design – Architectural Design – Data Design – Architectural Design and Patterns – Mapping Data Flow into a Software Architecture –User Interface Analysis and Design. Change Management.								
4	SOFTWARE TESTING				Total Hrs	9		
Software Testing – Strategies – Issues – Test Strategies For Conventional And Object Oriented Software – Validation Testing – System Testing – Testing Tactics: White Box Testing, Basis Path Testing – Control Structure Testing – Black Box Testing – Testing GUI – Testing Client/Server – Test Documentation.								
5	SOFTWARE PROJECT MANAGEMENT				Total Hrs	9		
Quality Concepts – Software Quality Assurance – Estimation – Software Project Estimation – Decomposition Techniques: Software Sizing – Problem Based Estimation – An Example of LOC Based Estimation – An Example of FP Based Estimation – Empirical Estimation Models – Project Scheduling – Reengineering: Reverse Engineering.								
Total hours to be taught						45		
Text book :								
1	Roger S. Pressman., Software Engineering: A Practitioner's Approach (Sixth Edition), McGraw Hill, 2005.							
Reference (s) :								
1	I.Sommerville, Software Engineering, V Edition: Addison Wesley, 1996.							
2	Pankaj Jalote- An Integrated Approach to Software Engineering, Springer Verlag, 1997.							
3	James F Peters and Witold Pedryez, "Software Engineering – An Engineering Approach", John Wiley and Sons, New Delhi, 2000.							
4	Fairely, "Software Engineering Concepts", McGraw Hill, 1995.							

<table>
<tr><td colspan="8">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2008</td></tr>
<tr><td colspan="2">Department</td><td colspan="2">Information Technology</td><td colspan="2">Programme Code &Name</td><td colspan="3">21: B.Tech.
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<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td>08210403C</td><td colspan="2">INFORMATION CODING TECHNIQUES</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td>Objective(s)</td><td colspan="8">To have a complete understanding of error–control coding, understand encoding and decoding of digital data streams, introduce methods for the generation of these codes and their decoding techniques, have a detailed knowledge of compression and decompression techniques, introduce the concepts of multimedia communication.</td></tr>
<tr><td>1</td><td colspan="5">INFORMATION ENTROPY FUNDAMENTALS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Uncertainty, Information and Entropy – Source coding Theorem – Huffman coding –Shannon Fano coding – Discrete Memory less channels – channel capacity – channel coding Theorem – Channel capacity Theorem.</td></tr>
<tr><td>2</td><td colspan="5">DATA AND VOICE CODING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Differential Pulse code Modulation – Adaptive Differential Pulse Code Modulation – Adaptive subband coding – Delta Modulation – Adaptive Delta Modulation – Coding of speech signal at low bit rates (Vocoders, LPC).</td></tr>
<tr><td>3</td><td colspan="5">ERROR CONTROL CODING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Linear Block codes – Syndrome Decoding – Minimum distance consideration – cyclic codes – Generator Polynomial – Parity check polynomial – Encoder for cyclic codes – calculation of syndrome – Convolutional codes.</td></tr>
<tr><td>4</td><td colspan="5">COMPRESSION TECHNIQUES</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Principles – Text compression – Static Huffman Coding – Dynamic Huffman coding – Arithmetic coding – Image Compression – Graphics Interchange format – Tagged Image File Format – Digitized documents – Introduction to JPEG standards.</td></tr>
<tr><td>5</td><td colspan="5">AUDIO AND VIDEO CODING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Linear Predictive coding – code excited LPC – Perceptual coding, MPEG audio coders – Dolby audio coders – Video compression – Principles – Introduction to H.261 & MPEG Video standards.</td></tr>
<tr><td colspan="8">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="9">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="8">Simon Haykin, “Communication Systems”, John Wiley and Sons, 4th Edition, 2001.</td></tr>
<tr><td>2</td><td colspan="8">Fred Halsall, “Multimedia Communications, Applications Networks Protocols and Standards”, Pearson Education, Asia 2002; Chapters: 3, 4, 5.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Mark Nelson, “Data Compression Book”, BPB Publication 1992.</td></tr>
<tr><td>2</td><td colspan="8">Watkinson J, “Compression in Video and Audio”, Focal Press, London, 1995.</td></tr>
<tr><td>3</td><td colspan="8">L.Ganesan, S.Sureshkumar ,R.Mathusoothana S.kumar , “Information theory and coding”, Anuradha Agencies, 2002.</td></tr>
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<tr><td colspan="2">08210404C</td><td colspan="2">JAVA PROGRAMMING</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">Understand the concepts of Object Oriented Programming, design and develop Java Applications and applets, introduce the concepts of packages and class libraries, develop network programs in Java.</td></tr>
<tr><td>1</td><td colspan="5">JAVA INTRODUCTION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">An overview of Java, Data types, Variables and arrays, Operators, Control statements, Classes Objects, Methods, Inheritance.</td></tr>
<tr><td>2</td><td colspan="5">JAVA CONCEPTS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Packages and Interfaces, Exception handling, Multithreaded programming, Strings.</td></tr>
<tr><td>3</td><td colspan="5">PACKAGES</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Lang packages, Util packages – The Collections Framework, I/O packages, Net work package.</td></tr>
<tr><td>4</td><td colspan="5">INTRODUCTION TO AWT</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Applets Package, Event handling, Introducing the AWT: working with windows, Graphics and Text.</td></tr>
<tr><td>5</td><td colspan="5">AWT PACKAGE AND DATABASE CONNECTIVITY</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Using AWT controls, Layout Managers and Menus, Java Data Base Connectivity (JDBC).</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="8">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="7">Herbert Schildt, “The complete Reference – Java 2”, fifth edition, Tata McGraw Hill Publishing Company, 2006.</td></tr>
<tr><td>2</td><td colspan="7">H.M. Deitel, P.J. Deitel “JAVA™ How to program”, sixth edition, Pearson Education – 2007. [JDBC only]</td></tr>
<tr><td colspan="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">Advanced programming in JAVA prentice – Hall of India Private Limited NIIT – 2003.</td></tr>
<tr><td>2</td><td colspan="7">Pratik patel and Karlmoss “Java Data base programming with JDBC”, Second Edition, Dream tech press – 2000.</td></tr>
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<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210405S</td><td colspan="2">DIGITAL SIGNAL PROCESSING
(Common to CSE & IT)</td><td>3</td><td>1</td><td>0</td><td>4</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To have an overview of signals and systems., study DFT & FFT, the design of IIR filters, the design of FIR filters , the effect of finite word lengths & applications of DSP.</td></tr>
<tr><td>1</td><td colspan="5">SIGNALS AND SYSTEMS</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">Basic elements of digital signal Processing –Concept of frequency in continuous time and discrete time signals –Sampling theorem –Discrete time signals. Discrete time systems –Analysis of Linear time invariant systems – Z transform –Convolution and correlation.</td></tr>
<tr><td>2</td><td colspan="5">FAST FOURIER TRANSFORMS</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">Introduction to DFT – Efficient computation of DFT Properties of DFT – FFT algorithms – Radix-2 – Decimation in Time – Decimation in Frequency algorithms.</td></tr>
<tr><td>3</td><td colspan="5">IIR FILTER DESIGN</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">Structure of IIR – System Design of Discrete time IIR filter from continuous time filter – IIR filter design by Impulse Invariance. Bilinear transformation – Approximation derivatives.</td></tr>
<tr><td>4</td><td colspan="5">FIR FILTER DESIGN</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">Symmetric & Antisymteric FIR filters – Linear phase filter – Windowing technique – Rectangular, Kaiser windows – Structure for FIR systems.</td></tr>
<tr><td>5</td><td colspan="5">FIXED WORD LENGTH EFFECTS IN DIGITAL FILTERS</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">Number representation – types, Quantization Noise – Truncation – Rounding – Error due to truncation and rounding, Input quantisation ever – steady state input noise power – steady state output noise power, Application of DSP – Model of speech wave form – Vocoders.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">60</td></tr>
<tr><td colspan="9">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="8">John G Proakis and Dimtris G Manolakis, “Digital Signal Processing Principles, Algorithms and Application”, PHI/Pearson Education, 2000, 3rd Edition.</td></tr>
<tr><td colspan="9">Reference(s):</td></tr>
<tr><td>1</td><td colspan="8">Alan V Oppenheim, Ronald W Schafer and John R Buck, “Discrete Time Signal Processing”, PHI/Pearson Education, 2000, 2nd Edition.</td></tr>
<tr><td>2</td><td colspan="8">Johny R.Johnson, “Introduction to Digital Signal Processing”, Prentice Hall of India/Pearson Education, 2002.</td></tr>
<tr><td>3</td><td colspan="8">Sanjit K.Mitra, “Digital Signal Processing: A Computer – Based Approach”, Tata McGraw-Hill, 2001, Second Edition.</td></tr>
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<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210406C</td><td colspan="2">MICROPROCESSORS AND MICROCONTROLLERS</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To study the architecture and Instruction set of 8085 and 8086, develop assembly language programs in 8085 and 8086, design and understand multiprocessor configurations, study different peripheral devices and their interfacing to 8085/8086, study the architecture and programming of 8051 microcontroller.</td></tr>
<tr><td>1</td><td colspan="5">THE 8085 MICROPROCESSOR</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Introduction to 8085-Microprocessor architecture-Instruction set-Programming the 8085-Timing Diagram</td></tr>
<tr><td>2</td><td colspan="5">8086 SOFTWARE ASPECTS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Intel 8086 microprocessor –Architecture-Instruction set and assembler directives-Addressing modes-Assembly Language Programming-Interrupts and interrupt service routines.</td></tr>
<tr><td>3</td><td colspan="5">8086 SYSTEM DESIGN</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">8086 signals and timing –MIN/MAX mode of operation-Addressing memory and I/O-Multiprocessor configurations-Numeric Processor and Coprocessor.</td></tr>
<tr><td>4</td><td colspan="5">I/O INTERFACING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Memory interfacing and I/O interfacing-Parallel communication interface-Serial Communication interface-Timer-Keyboard/Display controller-Interrupt controller-DMA controller.</td></tr>
<tr><td>5</td><td colspan="5">MICROCONTROLLERS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Architecture of 8051-Signals-Operational features- Instruction set-Memory and I/O Addressing-Interrupts-Application.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="8">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="7">Ramesh S.Goankar, “Microprocessor –Architecture, Programming and Applications with the 8085”, Penram International publishing private limited, fifth edition, 2002.
(UNIT –I:-Chapters 3, 5, 6 and programming examples from chapters 7-10)</td></tr>
<tr><td>2</td><td colspan="7">A.K.Ray &K.M.Bhurchandi”, Advanced Microprocessors and peripherals-Architectures, Programming and Interfacing”, TMH, 2002 reprint.(UNIT II to IV:-Chapters 1-6,7.1-7.3,8,16)</td></tr>
<tr><td colspan="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">Douglas V.Hall, ”Microprocessor and Interfacing” Programming and Hardware”. TMH, Third edition, 2002.</td></tr>
<tr><td>2</td><td colspan="7">Yu-cheng Liu, Glenn A.Gibson,”Microprocessor systems: The 8086/8088 Family Architecture, Programming and Design”, PHI 2003.</td></tr>
<tr><td>3</td><td colspan="7">Mohamed Ali Mazidi, Janice Gillispie Mazidi,”The 8051 microcontroller and embedded systems”, Pearson education, 2004.</td></tr>
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K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology	Programme Code &Name			21: B.Tech. Information Technology			
Semester IV								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210407P	JAVA PROGRAMMING LABORATORY	0	0	3	2	50	50	100

LIST OF EXPERIMENTS

1. Program using control statements.
2. Program to implement the concept of class and objects.
3. Program to illustrate the use of overloading and overriding.
4. Program to implement the concept of interfaces and packages.
5. Program using exception handling mechanism.
6. Program to achieve inter thread communication and deadlock avoidance.
7. Program to implement the file operations.
8. Program using Applets.
9. Program using AWT.
10. Program using collections.
11. Program using Net package.
12. Program using JDBC.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology	Programme Code &Name			21: B.Tech. Information Technology			
Semester IV								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210408P	DIGITAL SIGNAL PROCESSING LABORATORY	0	0	3	2	50	50	100

LIST OF EXPERIMENTS

1. Study of Matlab Commands.
2. Generation of standard signals.
3. Program on convolution.
4. Program on Correlation.
5. Program on Sampling Theorem.
6. Z & Inverse Z Transform.
7. Implementation of DFT and FFT.
8. IIR filter design by bilinear transformation.
9. IIR filter design by impulse invariant method.
10. Butterworth filter.
11. Chebyshev filter.
12. FIR filter design by rectangular window method.
13. IIR filter structure by direct I form. *
14. IIR filter structure by direct II form. *
15. IIR filter structure by Parallel form. *

* It should be done in extra lab

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology		Programme Code &Name		21: B.Tech. Information Technology			
Semester IV								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210409P	MICROPROCESSORS AND MICROCONTROLLERS LABORATORY	0	0	3	2	50	50	100

LIST OF EXPERIMENTS

1. Programming with 8085-8-bit/16-bit multiplication/division using repeated Addition / Subtraction.
2. Programming with 8085-code conversion, decimal arithmetic, bit manipulations.
3. Programming with 8085-matrix multiplication.
4. 8086 Microprocessor based experiments-Simple assembly language programs.
5. Interfacing with 8085/8086-8255 Parallel Communication Interface.
6. Interfacing with 8085/8086-8253 Timer Interface.
7. Interfacing with 8085/8086-8279 Keyboard Display Interface.
8. Interfacing with 8085/8086-8251Serial Communication Interface.
9. 8051 Microcontroller based experiments-Simple assembly language programs.
10. 8051 Microcontroller based experiments-Simple control applications.

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<tr><td>08210410P</td><td colspan="2">COMPREHENSION – III</td><td>0</td><td>0</td><td>3</td><td>0</td><td>100</td><td>00</td><td>100</td></tr>
<tr><td>Objective(s)</td><td colspan="8">i) To comprehend the semester subjects studied.
ii) To improve the technical knowledge of the students.</td></tr>
<tr><td>Methodology</td><td colspan="8">1. For each subject 200 Keywords / Important words or terms (5 units x 40 words) are to be prepared.
2. These 200 keywords are to be printed in double column (2x50 words) and in 2 pages and is to be handed over each student for all the subjects.
3. The staff who is handling the subject in the current semester will handle the respective discussion period (3 periods/semester) as given below.
4. The staff will explain and question the students using ‘W’ and ‘H’ type questions linking the keywords.
5. In a similar way the students have to prepare themselves for all the keywords</td></tr>
<tr><td rowspan="14">Execution</td><td colspan="8">The Schedule for Conduct of Comprehension Subject.</td></tr>
<tr><td>Week</td><td colspan="2">Activity</td><td colspan="2"></td><td colspan="3"></td></tr>
<tr><td></td><td colspan="2">First 1½ Period subject (No. of units)</td><td colspan="2">Next 1½ period Subject (No. of units)</td><td colspan="3">Hours</td></tr>
<tr><td>W1</td><td colspan="2">S1 (2)</td><td colspan="2">S2 (2)</td><td colspan="3">3</td></tr>
<tr><td>W2</td><td colspan="2">S3 (2)</td><td colspan="2">S4 (2)</td><td colspan="3">3</td></tr>
<tr><td>W3</td><td colspan="2">S5 (2)</td><td colspan="2">S6 (2)</td><td colspan="3">3</td></tr>
<tr><td>W4</td><td colspan="4">Test-I (Portion:2 units in each subject)</td><td colspan="3">1</td></tr>
<tr><td>W5</td><td colspan="2">S1 (3)</td><td colspan="2">S2 (3)</td><td colspan="3">3</td></tr>
<tr><td>W6</td><td colspan="2">S3 (3)</td><td colspan="2">S4 (3)</td><td colspan="3">3</td></tr>
<tr><td>W7</td><td colspan="2">S5 (3)</td><td colspan="2">S6 (3)</td><td colspan="3">3</td></tr>
<tr><td>W8</td><td colspan="4">Test-II (Portion:3 units in each subject)</td><td colspan="3">1</td></tr>
<tr><td>W9</td><td colspan="4">Discussion</td><td colspan="3">3</td></tr>
<tr><td>W10</td><td colspan="4">Test-III (All 5 units and all subject)</td><td colspan="3">1</td></tr>
<tr><td></td><td colspan="4">Total</td><td colspan="3">24</td></tr>
<tr><td rowspan="6">Evaluation</td><td colspan="8">• It is a two credit (3 hrs /week) Laboratory type course.
• Only continuous Assessment (CA) and No End Semester examination.
• Each test will carry100 questions distributed among the subjects in respective units</td></tr>
<tr><td colspan="2">Component</td><td colspan="6">Weightage</td></tr>
<tr><td colspan="2">Test – I</td><td colspan="6">25</td></tr>
<tr><td colspan="2">Test – II</td><td colspan="6">25</td></tr>
<tr><td colspan="2">Test – III</td><td colspan="6">50</td></tr>
<tr><td colspan="2">Total</td><td colspan="6">100</td></tr>
<tr><td>S1</td><td colspan="8">08210401C – Probability and Statistics</td></tr>
<tr><td>S2</td><td colspan="8">08210402C – Software Engineering</td></tr>
<tr><td>S3</td><td colspan="8">08210403C - Information Coding Techniques</td></tr>
<tr><td>S4</td><td colspan="8">08210404C – Java Programming</td></tr>
<tr><td>S5</td><td colspan="8">08210405S – Digital Signal Processing</td></tr>
<tr><td>S6</td><td colspan="8">08210406C – Microprocessors and Microcontrollers</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
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Semester IV								
Course Code	Course Name	Hours/Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210411P	CAREER COMPETENCY DEVELOPMENT II	0	0	2	0	100	00	100
Objective(s)	i. To improve the skill level of students. ii. To improve the employability of students							

1	Aptitude Skills	Hrs
a. Arithmetic ability : Ratio and proportion - Pipes and cisterns - Boats and streams - Simple interest - Compound interest - Alligation or mixture - Area b. Verbal Reasoning : Coding and decoding - Blood Relations - Puzzle Test - Directions sense test - Logic - Statement – Arguments - Statements - Assumptions c. Nonverbal Reasoning : Analytical Reasoning - Mirror – Images - Water – Images		8
2	Programming Skills	
a. C Language : Pointers - File Operations b. Data Structures : Linked List – Stack – Queue – Sorting		6
3	Written Communication Skills	4
Error correction in the usage of conjunctions, Tenses, Voices & Subject – verb Agreement (concord) - Essay Writing Evaluation I – Written Test		2
4	Oral Communication	
Evaluation II, Group Discussion I Evaluation III : - Group Discussion II		2 2
5	Technical Paper Presentation	
Evaluation IV , Technical Paper Presentation II (Association Session)		8
	Total	32

Reference(s):	
1	R.S.Aggarwal ,"Quantitative Aptitude", S.Chand & Company Ltd., New Delhi, Reprint 2007 (Twice) Ch - 12, 16, 19, 20, 21, 22 & 24 (Unit – I)
2	R.S.Aggarwal , "A Modern Approach to Verbal and Non – Verbal Reasoning", S.Chand & Company Ltd., New Delhi, 2008, Part I – Section I (Ch - 4,5,6 & 8) Part I - Section II (Ch -1,2 & 3) Part II (Ch 4,5 & 6) (Unit – I)
3	Yashavant Kanetkar, " Let us 'C' ", BPB Publications, New Delhi, 2002, Ch - 5, 8, 12 (Unit – II)
4	Mark Allen Weiss , "Data Structures and Algorithm Analysis in C", Pearson Education 2002, (Ch -3, 7) (Unit – II)
5	CCD Guide of English Department of KSRCT – 2008 (Unit III, IV & V)

EVALUATION CRITERIA

S.No.	Particular	Test Portion	Marks
1	Evaluation I Written Test	Unit I – OQ – 50, Unit II – OQ – 30 Unit III – OQ 20	50
2	Evaluation II Group Discussion I	P – 5 Marks, C – 5 Marks, TS – 5 Marks	15
3	Evaluation III Group Discussion II	P – 10 Marks, C – 5 Marks, TS – 5 Marks	15
4	Evaluation IV Technical Paper Presentation	P – 10 Marks, C – 5 Marks, Q – 5	20
P–Presentation C–Content Q–Queries OQ–Objective type question T–Total TS–Team Skills			T = 100

Note :

1. Question paper and keys will be supplied by the training cell for written test for Evaluation I
2. Respective Departments will conduct Evaluation I, II, III & IV, correct and submit the marks obtained by the students to the Training Cell.
3. HODs will display about 50 topics for oral communication.
4. All training & tests will be conducted on odd Saturdays, Session of 2 periods in FN & Session of 2 periods in AN & Association Session.

<table>
<tr><td colspan="8">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2008</td></tr>
<tr><td colspan="2">Department</td><td colspan="2">Information Technology</td><td colspan="2">Programme code & Name</td><td colspan="3">21: B.Tech. Information Technology</td></tr>
<tr><td colspan="9">Semester V</td></tr>
<tr><td colspan="2" rowspan="2">Course Code</td><td colspan="2" rowspan="2">Course Name</td><td colspan="4">Hours / Week</td><td>Credit</td><td colspan="2">Maximum Marks</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210501G</td><td colspan="2">PROFESSIONAL ETHICS</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objectives</td><td colspan="7">To create an awareness on Ethics and Human Values and instill Moral and Social Values in Students.</td></tr>
<tr><td>1</td><td colspan="5">INTRODUCTION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Ethics defined – Engineering as a profession – Core qualities of professional practitioners – Theories of right action – Major ethical issues – Three types of inquiry – Kohlberg’s stages of moral development – Carol Gilligan theory – Moral dilemmas – Moral autonomy – Value based ethics.</td></tr>
<tr><td>2</td><td colspan="5">ENGINEERING AS SOCIAL EXPERIMENTATION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Comparison with standard experiments – Relevant information – Learning from the past – Engineers as managers, consultants and leaders – Accountability – Role of codes – Code of ethics for engineers; introduction, rules of practice and professional obligations – The space shuttle challenger case study.</td></tr>
<tr><td>3</td><td colspan="5">ENGINEERS RESPONSIBILITY FOR SAFETY AND RISK</td><td colspan="2">Total hrs</td><td>9</td></tr>
<tr><td colspan="8">Safety and Risk – Types of risks – Safety and the engineer – Designing for safety – Risk Benefit analysis – Accidents - The three mile Island disaster case study – The Chernobyl disaster case study.</td></tr>
<tr><td>4</td><td colspan="5">RESPONSIBILITIES AND RIGHTS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Collegiality – Two senses of loyalty – Professional rights and responsibilities – Conflict of Interest – Collective Bargaining – Confidentiality – Acceptance of bribes / gifts – Occupational crimes – Whistle Blowing.</td></tr>
<tr><td>5</td><td colspan="5">GLOBAL ISSUES</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Gloabalization – Cross Cultural Issues – The Bhopal gas tragedy case study – Computer ethics – Weapons development – Intellectual property rights (IPR).</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="8">Text book :</td></tr>
<tr><td>1</td><td colspan="7">Govindarajan M, Natarajan S, Senthil Kumar V.S, “Engineering Ethics”, Prentice Hall of India (P) Ltd, New Delhi, 2005.</td></tr>
<tr><td colspan="8">References:</td></tr>
<tr><td>1</td><td colspan="7">Mike W. Martin and Roland Schinzinger, “Ethics in Engineering”, Tata McGraw-Hill Publishing Company Limited, New Delhi, 2007.</td></tr>
<tr><td>2</td><td colspan="7">Govindan K.R., and Sendhil Kumar S., “Professional Ethics and Human Values”, Anuradha Publications, Chennai, 2007.</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation									R 2008
Department	Information Technology		Programme Code & Name			21: B.Tech. Information Technology			
Semester V									
Course Code	Course Name	Hours / Week			Credit	Maximum Marks			
		L	T	P	C	CA	ES	Total	
08210502C	OBJECT ORIENTED ANALYSIS AND DESIGN	3	0	0	3	50	50	100	
Objective(s)	To understand the Object Oriented Life Cycle, know how to identify objects, relationships, services and attributes through UML, understand the use-case diagrams, know the Object Oriented Design process, know about Software Quality and Usability.								
1	INTRODUCTION				Total Hrs	8			
An Overview of Object Oriented Systems Development - Object Basics – Object Oriented Systems Development Life Cycle.									
2	OBJECT ORIENTED METHODOLOGIES				Total Hrs	12			
Rumbaugh Methodology - Booch Methodology - Jacobson Methodology - Patterns – Frameworks – Unified Approach – Unified Modeling Language – Use case - Class Diagram - Interactive Diagram - Package Diagram - Collaboration Diagram - State Diagram - Activity Diagram.									
3	OBJECT ORIENTED ANALYSIS				Total Hrs	9			
Identifying use cases - Object Analysis - Classification – Identifying Object relationships - Attributes and Methods.									
4	OBJECT ORIENTED DESIGN				Total Hrs	8			
Design axioms - Designing Classes – Access Layer - Object Storage - Object Interoperability.									
5	SOFTWARE QUALITY AND USABILITY				Total Hrs	8			
Designing Interface Objects – Software Quality Assurance – System Usability - Measuring User Satisfaction.									
Total hours to be taught						45			
Text book (s) :									
1	Ali Bahrami, “Object Oriented Systems Development”, Tata McGraw-Hill, 2002 (Unit I, III, IV, V).								
2	Martin Fowler, “UML Distilled”, Second Edition, PHI/Pearson Education, 2002. (UNIT II).								
Reference (s) :									
1	Stephen R. Schach, “Introduction to Object Oriented Analysis and Design”, Tata McGraw-Hill, 2003.								
2	James Rumbaugh, Ivar Jacobson, Grady Booch “The Unified Modeling Language Reference Manual”, Addison Wesley, 1999.								
3	Hans-Erik Eriksson, Magnus Penker, Brain Lyons, David Fado, “UML Toolkit”, OMG Press Wiley Publishing Inc., 2004.								

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
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Semester V								
Course Code	Course Code	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210503C	OPERATING SYSTEMS	3	1	0	4	50	50	100
Objective(s)	To have an overview of different types of operating systems, know the components of an operating system have a thorough knowledge of process management, have a thorough knowledge of storage management, know the concepts of I/O and file systems.							
1	BASIC CONCEPTS				Total Hrs	9+3		
Introduction - Mainframe systems – Desktop Systems – Multiprocessor Systems – Distributed Systems – Clustered Systems – Real Time Systems – Handheld Systems– Operating System Services – System Calls – System Programs - Process Concept – Process Scheduling – Operations on Processes – Cooperating Processes – Inter-process Communication.								
2	PROCESS MANAGEMENT				Total Hrs	9+3		
Threads – Overview – Threading issues - CPU Scheduling – Basic Concepts – Scheduling Criteria – Scheduling Algorithms – Multiple-Processor Scheduling – Real Time Scheduling - The Critical-Section Problem – Synchronization Hardware – Semaphores – Classic problems of Synchronization .								
3	MEMORY MANAGEMENT - I				Total Hrs	9+3		
System Model – Deadlock Characterization – Methods for handling Deadlocks -Deadlock Prevention – Deadlock avoidance – Deadlock detection – Recovery from Deadlocks - Storage Management – Swapping – Contiguous Memory allocation – Paging – Segmentation – Segmentation with Paging.								
4	MEMORY MANAGEMENT - II				Total Hrs	9+3		
Virtual Memory – Demand Paging – Process creation – Page Replacement – Allocation of frames – Thrashing - File Concept – Access Methods – Directory Structure – File System Mounting – File Sharing – Protection								
5	I/O SYSTEMS				Total Hrs	9+3		
File System Structure – File System Implementation – Directory Implementation – Allocation Methods – Free-space Management. Kernel I/O Subsystems - Disk Structure – Disk Scheduling – Disk Management – Swap-Space Management.								
Total hours to be taught						60		
Text book :								
1	Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, “Operating System Concepts”, Sixth Edition, John Wiley & Sons (ASIA) Pvt. Ltd, 2003.							
Reference (s) :								
1	Harvey M. Deitel, “Operating Systems”, Second Edition, Pearson Education Pvt. Ltd, 2002.							
2	Andrew S. Tanenbaum, “Modern Operating Systems”, Prentice Hall of India Pvt. Ltd, 2003.							
3	William Stallings, “Operating System”, Prentice Hall of India, 4th Edition, 2003.							
4	Pramod Chandra P. Bhatt – “An Introduction to Operating Systems, Concepts and Practice”, PHI, 2003.							

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Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210504C	COMPUTER NETWORKS	3	1	0	4	50	50	100
Objective(s)	To understand the concepts of Data Communications study the functions of different layers, introduce IEEE standards employed in Computer Networking, make the students to get familiarized with different Protocols and Network Components.							

1	DATA COMMUNICATIONS	Total Hrs	8+3
Networks – Components and Categories –Line Configuration – Topologies –Protocols and Standards – ISO / OSI model – Transmission Media – Coaxial Cable – Fiber Optics – Line Coding – Modems .			
2	DATA LINK LAYER	Total Hrs	10+3
Error – Detection and Correction – Parity – LRC – CRC – Hamming code – Flow Control and Error Control - Stop and Wait – go back-N ARQ – Selective Repeat ARQ- Sliding Window – HDLC. LAN - Ethernet IEEE 802.3 – IEEE 802.4 - IEEE 802.5 - FDDI - Bridges.			
3	NETWORK LAYER	Total Hrs	9+3
Internetworks – Circuit Switching – Packet Switching– IP addressing methods – Subnetting – Routers- Routing Algorithms – Distance Vector Routing – Link State Routing.			
4	TRANSPORT LAYER	Total Hrs	9+3
Duties of Transport Layer – Multiplexing – Demultiplexing – Sockets – User Datagram Protocol (UDP) – Transmission Control Protocol (TCP) – Congestion Control – Quality of services (QOS) – Integrated Services.			
5	APPLICATION LAYER	Total Hrs	9+3
Domain Name Space (DNS) – SMTP – FTP – HTTP - WWW – Security – Cryptography –Privacy–Digital Signature–PGP-Access Authorization.			
Total hours to be taught			60

Text book :	
1	Behrouz A. Forouzan, “Data communication and Networking (MCGraw-Hill Forouzan Networking”, McGraw-Hill, Fourth Edition , 2006.
Reference (s) :	
1	James F. Kurose and Keith W. Ross, “Computer Networking: A Top-Down Approach”, Pearson Education, Fifth Edition 2009.
2	Larry L.Peterson and Bruce S. Davie, “Computer Networks, A Systems Approach”, The Morgan Kaufman Series in Networking, Fourth Edition,2007.
3	Andrew S. Tanenbaum, “Computer Networks”, PHI, Fourth Edition, 2003.
4	William Stallings, “Data and Computer Communication”, Eighth Edition, Pearson Education, 2007.

K.S.Rangasamy College of Technology - Autonomous Regulation									R 2008
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Semester V									
Course Code	Course Name	Hours / Week			Credit	Maximum Marks			
		L	T	P	C	CA	ES	Total	
08210505S	DATABASE MANAGEMENT SYSTEMS	3	1	0	4	50	50	100	
Objective(s)	To learn the fundamentals of data models and to conceptualize and depict a database system using ER diagram, make a study of SQL and relational database design, understand the internal storage structures using different file and indexing techniques which will help in physical DB design, know the fundamental concepts of transaction processing- concurrency control techniques and recovery procedure, have an introductory knowledge about the emerging trends in the area of distributed DB- OO DB- Data mining and Data Warehousing and XML.								
1	INTRODUCTION AND CONCEPTUAL MODELING				Total Hrs	9+3			
Introduction to File and Database systems- Database system structure – Data Models – ER model – Relational Model – Relational Algebra and Calculus.									
2	RELATIONAL MODEL				Total Hrs	9+3			
SQL-Data definition- Queries in SQL- Updates- Views-Integrity and Security - Relational Database design-Functional dependencies - Normalization for Relational Databases (up to BCNF).									
3	DATA STORAGE AND INDEXING CONCEPTS				Total Hrs	9+3			
Record storage and Primary file organization- Secondary storage Devices- Operations on Files- Heap File-Sorted Files- Hashing Techniques – Index Structure for files –Different types of Indexes- B-Tree - B+Tree									
4	TRANSACTION MANAGEMENT				Total Hrs	9+3			
Transaction Processing – Introduction- Need for Concurrency control- Desirable properties of Transaction-Schedule and Recoverability- Serializability – Concurrency Control – Types of Locks- Two Phase locking-Time stamp based concurrency control – Recovery Techniques – Concepts- Immediate Update- Deferred Update - Shadow Paging.									
5	CURRENT TRENDS				Total Hrs	9+3			
Object Oriented Databases – Need for Complex Data types - OO data Model- Nested relations - Complex Types- Inheritance Reference Types - Distributed databases- Homogenous and Heterogenous- Distributed data Storage – XML – Structure of XML- Data- XML Document- Schema- Querying and Transformation. – Data Mining and Data Warehousing.									
Total hours to be taught						60			
Text book :									
1	Abraham Silberschatz, Henry F. Korth and S. Sudarshan - “Database System Concepts”, Fifth Edition, McGraw-Hill, 2006.								
Reference (s) :									
1	Ramez Elmasri and Shamkant B. Navathe, “Fundamental Database Systems”, Third Edition, Pearson Education, 2003.								
2	Raghu Ramakrishnan, “Database Management System”, Tata McGraw-Hill Publishing Company, 2003.								
3	Hector Garcia–Molina, Jeffrey D.Ullman and Jennifer Widom- “Database System Implementation”-Pearson Education- 2000.								
4	Peter Rob and Corlos Coronel- “Database System, Design, Implementation and Management”, Thompson Learning Course Technology- Fifth edition, 2003.								

K.S.Rangasamy College of Technology - Autonomous Regulation									R 2008
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Course Code	Course Name	Hours / Week			Credit	Maximum Marks			
		L	T	P	C	CA	ES	Total	
08210506C	TELECOMMUNICATION SYSTEMS	3	0	0	3	50	50	100	
Objective(s)	To gain knowledge about characteristics of Transmission and microwave devices, study about the fundamentals of satellite communication & optical communication, gain knowledge about advances in Telephone systems and TV systems, understand the essentials of cellular communication systems and wireless technologies.								
1	INTRODUCTION TO MICROWAVE AND RADARS				Total Hrs	9			
Transmission lines – Types and Characteristics, Antenna Fundamentals – Different types of antennas & their Characteristics, Radio Frequency wave propagation- Microwave –Principles, Devices (Reflex Klystron, Magnetron, TWT)-(Principles Only) Radar - Pulsed Radar - CW Radar (Principles and Block Diagram Only).									
2	INTRODUCTION TO SATELLITE COMMUNICATIONS				Total Hrs	9			
Satellite orbits- Satellite communication systems –Satellite Sub Systems –Earth stations- Satellite Applications: Surveillance, Navigation, Mobile Communication, Digital Satellite Radio, Satellite Telephone-Global Positioning System.									
3	INTRODUCTION TO OPTICAL COMMUNICATION AND TELEPHONE SYSTEM				Total Hrs	9			
Light wave communication systems – Fiber structure and function types of Fiber – Optical Transmitter & Receiver –Fiber optic Data communication systems Telephones –Telephone system- Facsimile- Integrated services Digital Networks (ISDN)									
4	TELEVISION				Total Hrs	9			
TV Signal – Generating Video Signal – Colour Signal Generation – TV transmitter – TV receiver – Colour Picture Tube – Modern Cable TV System – Satellite TV – Digital Television.									
5	CELLPHONE & WIRELESS TECHNOLOGIES				Total Hrs	9			
Cellular Telephone Systems – The advanced Mobile Phone System (AMPS) – Digital Cell Phone System – Wireless LAN – PAN's & blue tooth – Zigbee & Mesh Wireless Networks – Wi-max & Wireless Metropolitan Area Networks – Infrared Wireless – Radio Frequency Identification & Near Field Communication.									
Total hours to be taught						45			
Text book (s) :									
1	Louis.E.Frenzel,"Communication Electronics – Principles and Application", 3rd Editions, Tata McGraw-Hill, 2004.								
2	Louis E-Frenzel, "Principles of Electronics Communication System", 3rd Edition, Tata McGraw-Hill, 2008.								
Reference (s) :									
1	Wayne Tomasi, "Electronic Communication systems", 4th Edition, Pearson Education, 2002.								
2	Marin Cole,"Introduction to Telecommunications –Voice, Data and Internet", Pearson Education, 2001.								

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology		Programme Code & Name			21: B.Tech. Information Technology		
Semester V								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210507P	CASE TOOLS LABORATORY	0	0	3	2	50	50	100

Students have to take up two or three of the experiments listed below with the following guidelines:

1. Defining draft plan
2. Create Preliminary investigation report
3. Define requirements
4. Record Terms in Glossary
5. Design Use Case diagrams
6. Identify potential objects and classes
7. Identify associations and operations to potential classes
8. Develop class diagrams, activity diagrams, state chart diagrams
9. Develop deployment diagrams,
10. Develop a prototype and validate it

SUGGESTED LIST OF APPLICATIONS:

1. Student Marks Analyzing System
2. Quiz System
3. Online Ticket Reservation System
4. Payroll System
5. Course Registration System
6. Expert Systems
7. ATM Systems
8. Stock Maintenance
9. Real-Time Scheduler
10. Remote Procedure Call Implementation
11. Banking System
12. Automation of Exam System

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<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td>08210508P</td><td colspan="2">OPERATING SYSTEM AND OPEN SOURCE LABORATORY</td><td>0</td><td>0</td><td>3</td><td>2</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="9">(Implement the following on LINUX platform. Use C for high level language implementation)</td></tr>
<tr><td colspan="9">To teach the concepts of Linux, Internet applications, Security with Open Source and give practical training in installing & configuring various applications.

1. Shell programming
- command syntax
- write simple functions
- basic tests
2. Shell programming
- loops
- patterns
- expansions
- substitutions
3. Write programs using the following system calls of UNIX operating system:
fork, exec, getpid, exit, wait, close, stat, opendir, readdir
4. Write programs using the I/O system calls of UNIX operating system (open, read, write, etc)
5. Write C programs to simulate UNIX commands like ls, grep, etc.
6. Given the list of processes, their CPU burst times and arrival times, display/print the Gantt chart for FCFS and SJF. For each of the scheduling policies, compute and print the average waiting time and average turnaround time
7. Given the list of processes, their CPU burst times and arrival times, display/print the Gantt chart for Priority and Round robin. For each of the scheduling policies, compute and print the average waiting time and average turnaround time
8. Installation of Open Source – Desktop Linux OS, configuration.
9. Installation of Open Office, Mail client & Web/internet browser and configuration.
10. User Creation, Group Creation.
11. Configuration of DNS, DHCP.
12. Configuration of device like Printer, Ethernet and TCP /IP.</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
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Semester V								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210509P	DATABASE MANAGEMENT SYSTEMS LABORATORY	0	0	3	2	50	50	100

LIST OF EXPERIMENTS

1. Data Definition Language (DDL) commands in RDBMS.
2. Data Manipulation Language (DML) commands in RDBMS.
3. Data Control Language (DCL) commands in RDBMS.
4. High-level language extension with Cursors.
5. High level language extension with Triggers
6. Procedures and Functions.
7. Embedded SQL.
8. Integrity in SQL.
9. Design and implementation of Payroll Processing System.
10. Design and implementation of Banking System.
11. Design and implementation of Library Information System.

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Course Code	Course Name	Hours/Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210510P	CAREER COMPETENCY DEVELOPMENT III	0	0	2	0	100	00	100
Objective(s)	i. To improve the skill level of students. ii. To improve the employability of students							

1	Aptitude Skills	Hrs
a. Arithmetic ability : Partnership - Chain rule – Calendar – Permutation - Data Interpretation – Probability - Heights and Distance b. Verbal Reasoning : Logical Venn Diagrams - Logical Sequence of Words - Arithmetical reasoning - Data Sufficiency - Statement – Conclusion - Deriving condition from passages c. Nonverbal Reasoning : Rule detection - Cube and dice		8
2	Programming Skills	6
Data Structures : Tree - Graph Object Oriented Programming : Introduction to C++ - Classes and Objects – Constructors - Operator Overloading – Inheritance – Templates - File I/O		
3	Written Communication Skills	
Error correction in the usage of degrees of comparison, conditional clauses, numerical expressions and system international (SI) units. - Paragraph Writing.		4
Evaluation I – Written Test		2
4	Oral Communication Skills	
Group Discussion Demo - Listening comprehension Lab		2
Evaluation II – Group Discussion		2
5	Interview Skills (Association Session)	
Evaluation III - Technical Interview - **Technical Interview I (**Objective type questions from V th semester subjects)		4
Evaluation IV - HR Interview - **HR Interview I -** Adaptability, Self development, Creativity		4
	Total	32

Reference(s):

1	R.S.Aggarwal , “Quantitative Aptitude”, S.Chand & Company Ltd., New Delhi, Reprint 2007 (Twice) (Ch – 13, 14, 27, 30, 31, 34, 36, 37, 38, & 39) (unit – I)
2	R.S.Aggarwal , “A Modern Approach to verbal & Non–verbal Reasoning”, S.Chand & Company Ltd, New Delhi, 2008, Part I – Section I (Ch - 9,14,15 & 17) Part I–Section II (Ch – 5 & 6) Part II (Ch 12 & 14) (unit – I)
3	Mark Allen Weiss , “Data Structures and Algorithm Analysis in C”, Pearson Education 2002, Ch – 4, 9 (unit – II)
4	Herbert Schildt , “The Complete Reference C++” Tata MacGraw Hill, 2002 (Ch - 11, 12, 14, 15, 16,17, 18, 21)
5	CCD Guide by English Department of KSRCT, 2008 (Unit – III, IV & V)
6	HR Interview Guide by Training Cell, KSRCT, 2008.

EVALUATION CRITERIA

S.No.	Particular	Test Portion	Marks
1	Evaluation I Written Test	Unit I – OQ – 50, Unit II – OQ – 30 Unit III – OQ 20	50
2	Evaluation II - Group discussion	P – 5 Marks, C – 5 Marks, TS – 5 Marks	15
3	Evaluation III - Technical Interview	6 questions each 2½ Marks	15
4	Evaluation IV HR Interview	Creativity – 6 Marks (Adoptability – 7 Marks, Self development – 7 marks)	20
P–Presentation C–Content Q–Queries OQ–Objective type question T–Total TS–Team Skills			T = 100
Note :			

1. Question paper and keys will be supplied by the training cell for written test for Evaluation I
2. Respective Departments will conduct Evaluation I, II, III & IV, correct and submit the marks obtained by the students to the Training Cell.
3. HODs will display about 50 topics for oral communication.
4. All training & tests will be conducted on odd Saturdays, Session of 2 periods in FN & Session of 2 periods in AN & Association Session.
5. 66 students may be divided into 10 groups of 6 each. Each group may be evaluated in 10 Minutes for GD.
6. 60 objective type questions, 10 questions from each of 6 subjects are to be prepared. 1 question from each subject at random to be asked carrying 2½ marks each (6 x 2½ = 15 marks) for Technical Interview. Each section is divided into 3 groups of 22 each.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology	Programme code & Name			21: B.Tech. Information Technology			
Semester VI								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210601G	PRINCIPLES OF MANAGEMENT	3	0	0	3	50	50	100
Objective(s)	Knowledge on the principles of management is essential for all kinds of people in all kinds of organizations. After studying this course, students will be able to have a clear understanding of the managerial functions like planning, organizing, staffing, leading and controlling. Students will also gain some basic knowledge in international aspect of management.							
1.	HISTORICAL DEVELOPMENT				Total Hrs	9		
Definition of Management – Science or Art – Management and Administration – Development of Management Thought – Contribution of Taylor and Fayol – Functions of Management – Types of Business Organisation.								
2.	PLANNING				Total Hrs	9		
Nature & Purpose – Types of Plans – Steps involved in Planning – Objectives – Setting Objectives – process of Management by Objectives – Strategies, Policies & Planning Premises – Forecasting – Decision making.								
3.	ORGANISING				Total Hrs	9		
Nature and purpose – Formal and informal organization – Organization Chart – Structure and Process – Departmentation by difference strategies – Line and Staff authority – Benefits and limitations – De-Centralization and Delegation of Authority – Staffing – Selection process – Techniques – HRD – Managerial Effectiveness.								
4.	DIRECTING				Total Hrs	9		
Scope – Human Factors – Leadership – Types of Leadership – Motivation – Hierarchy of needs – Motivation Theories – Motivational Techniques – Job Enrichment – Communication – process of Communication – Barriers and Breakdown – Effective Communication – Electronic media in Communication.								
5.	CONTROLLING				Total Hrs	9		
System and process of Controlling – Requirements for effective control – the Budget as Control Technique – Information Technology in Controlling – Use of computers in handling the information – Productivity – Problems and Management – Control of Overall Performance – Direct and preventive Control – Reporting – The Global Environment – Globalization and Liberalization – International Management and Global theory of Management.								
Total hours to be taught						45		
Text book (s):								
1.	Harold Kooritz & Heinz Weihrich, “Essentials of Management”, Tata McGraw-Hill, 1998.							
2.	Joseph L Massie, “Essentials of Management”, Prentice Hall of India, (Pearson) Fourth Edition, 2003.							
Reference(s):								
1.	Tripathy PC And Reddy PN, “Principles of Management”, Tata McGraw Hill, 1999.							
2.	Decenzo David, Robbin Stephen A, “Personnel and Human Reasons Management”, Prentice Hall of India, 1996.							
3.	JAF Stomer, Freeman R. E and Daniel R “Gilbert Management”, Pearson Education, Sixth Edition, 2004.							
4.	Fraidoon Mazda, “Engineering Management”, Addison Wesley, 2000.							
5.	Prasad L.M, “Principles of Management”, Sultan Chand & Sons Ltd, 2003.							

<table>
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<tr><td>Department</td><td colspan="3">Information Technology</td><td colspan="2">Programme Code & Name</td><td colspan="3">21: B.Tech. Information Technology</td></tr>
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<tr><td rowspan="2">Course Code</td><td rowspan="2" colspan="3">Course Name</td><td colspan="3">Hours / Week</td><td>Credit</td><td colspan="3">Maximum Marks</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td>08210602S</td><td colspan="3">NUMERICAL METHODS</td><td>3</td><td>1</td><td>0</td><td>4</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td>Objective(s)</td><td colspan="8">At the end of the course, the students would be acquainted with the basic concepts in numerical methods and their uses are summarized as follows: The roots of nonlinear (algebraic or transcendental) equations, solutions of large system of linear equations and eigenvalue problem of a matrix can be obtained numerically where analytical methods fail to give solution. When huge amounts of experimental data are involved, the methods discussed on interpolation will be useful in constructing approximate polynomial to represent the data and to find the intermediate values, numerical differentiation and integration find application when the function in the analytical form is too complicated or the huge amounts of data are given such as series of measurements, observations or some other empirical information.</td></tr>
<tr><td>1</td><td colspan="5">SOLUTION OF EQUATIONS AND EIGENVALUE PROBLEMS</td><td colspan="2">Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="9">Linear interpolation methods (method of false position) – Solution of linear system by Gaussian elimination and Gauss-Jordon methods- Iterative methods: Gauss Jacobi and Gauss-Seidel methods- Inverse of a matrix by Gauss Jordon method – Eigen value of a matrix by power method.</td></tr>
<tr><td>2</td><td colspan="5">INTERPOLATION AND APPROXIMATION</td><td colspan="2">Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="9">Lagrangian Polynomials – Divided differences – Interpolating with a cubic spline – Newton’s forward and backward difference formulas.</td></tr>
<tr><td>3</td><td colspan="5">NUMERICAL DIFFERENTIATION AND INTEGRATION</td><td colspan="2">Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="9">Derivatives from difference tables – Divided differences and finite differences –Numerical integration by trapezoidal and Simpson’s 1/3 and 3/8 rules – Romberg’s method – Two and Three point Gaussian quadrature formulas – Double integrals using trapezoidal and Simpson’s rules.</td></tr>
<tr><td>4</td><td colspan="5">INITIAL VALUE PROBLEMS FOR ORDINARY DIFFERENTIAL EQUATIONS</td><td colspan="2">Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="9">Single step methods: Taylor series method – Euler and modified Euler methods – Fourth order Runge – Kutta method for solving first order equations – Multistep methods: Milne’s and Adam’s predictor and corrector methods.</td></tr>
<tr><td>5</td><td colspan="5">BOUNDARY VALUE PROBLEMS IN ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS</td><td colspan="2">Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="9">Finite difference solution of second order ordinary differential equation – Finite difference solution of one dimensional heat equation by explicit and implicit methods – One dimensional wave equation and two dimensional Laplace and Poisson equations.</td></tr>
<tr><td colspan="8">Total hours to be taught</td><td colspan="2">60</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">Kandasamy, P., Thilagavathy, K. and Gunavathy, K., “Numerical Methods”, S.Chand Co. Ltd., New Delhi, 2003.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Gerald, C.F, and Wheatley, P.O, “Applied Numerical Analysis”, Sixth Edition, Pearson Education Asia, New Delhi, 2002.</td></tr>
<tr><td>2</td><td colspan="8">Burden, R.L and Faires, T.D., “Numerical Analysis”, Seventh Edition, Thomson Asia Pvt. Ltd., Singapore, 2002.</td></tr>
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<tr><td colspan="2">08210603C</td><td colspan="2">TCP/IP AND SOCKET PROGRAMMING</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To know about IP layer protocols, know about Transport Layer Protocols, know about Routing and applications layer protocols, know about Elementary sockets, understand the socket programming applications.</td></tr>
<tr><td>1</td><td colspan="5">INTERNET PROTOCOLS</td><td colspan="2">Total Hrs</td><td colspan="2">12+3</td></tr>
<tr><td colspan="9">The OSI model and the TCP/IP protocol suite – IP addresses : classful addressing, classless addressing – delivery, forwarding and routing of IP packets – ARP and RARP – Internet Protocol – Internet Control Message Protocol – Internet Group Management Protocol.</td></tr>
<tr><td>2</td><td colspan="5">TRANSMISSION CONTROL PROTOCOL</td><td colspan="2">Total Hrs</td><td colspan="2">8+3</td></tr>
<tr><td colspan="9">User Datagram Protocol – Transmission Control Protocol – Stream Control Transmission Protocol.</td></tr>
<tr><td>3</td><td colspan="5">ROUTING AND APPLICATION LAYER PROTOCOLS</td><td colspan="2">Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="9">Unicast Routing Protocols – RIP, OSPF and BGP – Host Configuration – BOOTP, DHCP – Domain Name System.</td></tr>
<tr><td>4</td><td colspan="5">ELEMENTARY SOCKETS</td><td colspan="2">Total Hrs</td><td colspan="2">8+3</td></tr>
<tr><td colspan="9">Sockets Introduction – Socket Address Structure – Elementary TCP Sockets – Sending and Receiving – Socket Options.</td></tr>
<tr><td>5</td><td colspan="5">SOCKET PROGRAMMING APPLICATIONS</td><td colspan="2">Total Hrs</td><td colspan="2">8+3</td></tr>
<tr><td colspan="9">TCP Echo Client Server – UDP Echo Client Server – Elementary Name and Address Conversions. Remote login : TELNET – File Transfer : FTP and TFTP.</td></tr>
<tr><td colspan="8">Total hours to be taught</td><td colspan="2">60</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">Behrouz A. Forouzan, “TCP/IP Protocol Suite”, Third Edition, Tata McGraw Hill, New Delhi, 2007.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Douglas E.Comer, “Internetworking with TCP/IP, Principles, Protocols, and Architecture”, Fifth Edition, Prentice Hall, New Delhi, 2007.</td></tr>
<tr><td>2</td><td colspan="8">Richard Stevens.w, “Unix Network Programming”, Third Edition, Prentice Hall, New Delhi, 2003.</td></tr>
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<tr><td colspan="2">08210604C</td><td colspan="2">VISUAL PROGRAMMING</td><td>3</td><td>1</td><td>0</td><td>4</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To introduce the concepts of windows programming, introduce GUI programming using Microsoft Foundation Classes, enable the students to develop programs and simple applications using Visual C++.</td></tr>
<tr><td>1</td><td colspan="5">WINDOWS PROGRAMMING</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="8">Windows Environment – A Simple Windows Program – Windows and Messages – Creating the Window – Displaying the Window – Message Loop – the Window Procedure – Message Processing – Text Output – Painting and Repainting – Introduction to GDI – Device Context – The Keyboard-The Scroll Bar.</td></tr>
<tr><td>2</td><td colspan="5">VISUAL C++ PROGRAMMING – INTRODUCTION</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="8">Application Framework – MFC Library – Visual C++ Components – Event Handling – Mapping Modes – Colors – Fonts – Modal and Modeless Dialog – Windows Common Controls.</td></tr>
<tr><td>3</td><td colspan="5">THE DOCUMENT AND VIEW ARCHITECTURE</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="8">Menus – Keyboard Accelerators – Rich Edit Control – Toolbars – Status bars – Separating Document From Its View – Reading and Writing SDI and MDI Documents – Splitter Window and Multiple Views – Creating DLLs.</td></tr>
<tr><td>4</td><td colspan="5">ACTIVEX AND OBJECT LINKING AND EMBEDDING (OLE)</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="8">ActiveX Controls Vs. Ordinary Windows Controls – Installing ActiveX Controls – Calendar Control – Create ActiveX Control at Runtime – Component Object Model (COM) – OLE Drag and Drop – OLE Embedded Component and Containers.</td></tr>
<tr><td>5</td><td colspan="5">ADVANCED CONCEPTS</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="8">Database Management with Microsoft ODBC – Structured Query Language – MFC ODBC Classes – Sample Database Applications – DAO Concepts – Displaying Database Records in Scrolling View – VC++ Networking Issues – Winsock – WinInet – Building a Web Client – Internet Information Server – ISAPI Server Extension.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="8">Charles Petzold, “Windows Programming”, Microsoft press, 2003 (Unit I)</td></tr>
<tr><td>2</td><td colspan="8">David J.Kruglinski, George Shepherd and Scot Wingo, “Programming Microsoft Visual C++” Fifth Edition, Microsoft press, 2004 Reprint (Unit II – V)</td></tr>
<tr><td colspan="9">Reference :</td></tr>
<tr><td>1</td><td colspan="8">Steve Holtzner, “Visual C++ 6 Programming”, Wiley Dreamtech India Pvt. Ltd., 2003.</td></tr>
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<tr><td colspan="2">08210605C</td><td colspan="2">WEB TECHNOLOGY</td><td>3</td><td>1</td><td>0</td><td>4</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">Students will get an introduction about various Scripting Languages, students will be provided with an up-to-date survey of developments in. Web Technologies, enable the students to know techniques involved to support real-time Software development.</td></tr>
<tr><td>1</td><td colspan="6">INTRODUCTION</td><td>Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">History of the Internet and World Wide Web –Introduction to XHTML – CSS - Introduction to JAVA Scripts – Object Based Scripting for the web – Control Statements – Functions – Arrays – Objects.</td></tr>
<tr><td>2</td><td colspan="6">DYNAMIC HTML</td><td>Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Introduction – Object refers, Collectors all and Children, Dynamic styles, Dynamic position, frames, navigator, Event Model – On check – On load – On error – Onmouse move, onmouse over, onmouse out – Form process – Event Bubblers – Flip Filters – Chrome Filter – Creating Images – Images Filters – Adding shadows – Creating Gradients – Creating Motion with Blur – Data Binding – Simple Data Binding – Moving with a record set – Sorting table data – Binding of an Image and table.</td></tr>
<tr><td>3</td><td colspan="6">MULTIMEDIA</td><td>Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Audio and video speech synthesis and recognition - Electronic Commerce – E-Business Model – E- Marketing – Online Payments and Security – Web Servers – HTTP request types – System Architecture – Client Side Scripting and Server side Scripting – Accessing Web servers – IIS – Apache web server.</td></tr>
<tr><td>4</td><td colspan="6">DATABASE- ASP – XML</td><td>Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Database, Relational Database model – SQL – ASP – Working of ASP – Objects – File System Objects – Session tracking and cookies – ADO – Access a Database from ASP – Server side Active-X Components – XML – Structure in Data – Name spaces – DTD – Vocabularies – DOM methods.</td></tr>
<tr><td>5</td><td colspan="6">SERVLETS AND JSP</td><td>Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Introduction – Servlet Overview Architecture – Handling HTTP Request – Get and post request – redirecting request – multi-tier applications – JSP – Overview – Objects – scripting – Standard Actions – Directives.</td></tr>
<tr><td colspan="7">Practical</td><td>10</td></tr>
<tr><td colspan="7">Tutorial hours</td><td>5</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td>60</td></tr>
<tr><td colspan="8">Text book :</td></tr>
<tr><td>1</td><td colspan="7">Deitel & Deitel, Goldberg, “Internet and world wide web – How to Program”, 4th ed., Pearson Education Asia, 2001.</td></tr>
<tr><td colspan="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">Aferganatel, “Web Programming: Desktop Management”, PHI, 2004.</td></tr>
<tr><td>2</td><td colspan="7">Rajkamal, “Web Technology”, Tata McGraw-Hill, 2001.</td></tr>
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Department	Information Technology		Programme Code & Name			21: B.Tech. Information Technology		
Semester VI								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210607P	VISUAL PROGRAMMING LABORATORY	0	0	3	2	50	50	100

WINDOWS SDK / VISUAL C++

1. Writing code for keyboard and mouse events.
2. Dialog Based applications.
3. Creating MDI applications.
4. Creating simple drawings.
5. Dynamic controls.
6. Mapping Modes.
7. Bitmaps.
8. GDI objects.
9. Menu, Accelerator.
10. Tool bar, Tool tip.
11. Status bar.
12. Creating DLLs and using them.
13. Data access through ODBC.
14. Data access through DAO.
15. Creating ActiveX control and using it.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
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Semester VI								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210608P	NETWORK LABORATORY	0	0	3	2	50	50	100

LIST OF EXPERIMENTS

1. Simulation of ARP and RARP.
2. Simulation of stop and wait protocol.
3. Simulation of sliding window protocol.
4. Simulation of distance vector routing algorithm.
5. Simulation of link state vector routing algorithm.
6. Develop a client-server application for chatting.
7. Message encryption and decryption using RSA algorithm.
8. Message encryption and decryption using DES algorithm.
9. Study of NS2.
10. Study of Glomosim.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
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Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210609P	DESIGN PROJECT	0	0	3	2	100	00	100

Prepare and develop a Design Project using the Software Engineering Methodologies given below:

1. Problem Identification.
2. Software Requirement Specification.
3. Cost benefits analysis.
4. Time line of activities.
5. Design Concepts.
6. Implementation (Hardware / Software / both).
7. Testing & Validation of the developed system.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
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Semester VI								
Course Code	Course Name	Hours/Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210610P	CAREER COMPETENCY DEVELOPMENT IV	0	0	2	0	100	00	100
Objective(s)	i. To improve the skill level of students. ii. To improve the employability of students.							

1	Company type written test in Aptitude, Written Communication Skills	Hrs
Company based questions – Questions from Aptitude, Written communication and Comprehension. Evaluation I Written Test		6 2
2	Company type written test in Verbal and Non-verbal Reasoning Skills	
Company based questions – Questions from Verbal and Non-verbal reasoning. Evaluation II Written Test		6 2
3	Programming Skills	
Company based questions from C language, Data structures and Object Oriented Programming. Evaluation III Written Test		6 2
4	Interview Skills(Association Session)	
Technical Interview – Questions from core subjects HR Interview - Flexibility, Achievement orientation, Decisiveness Evaluation IV – Technical & HR Interview.		4+4
	Total	32

Reference(s):

1	R.S.Aggarwal , "Quantitative Aptitude", S.Chand & Company Ltd., New Delhi, Reprint 2007 (Twice) (unit – I)
2	CCD Guide by English Department of KSRCT, 2008 (Unit – I)
3	R.S.Aggarwal , "A Modern Approach to verbal & Non – verbal Reasoning", S.Chand & Company Ltd, New Delhi, 2008, (unit – II)
4	Yashavant Kanetkar, " Let us 'C' ", BPB Publications, New Delhi, 2002 (unit – III)
5	Herbert Schildt, " The Complete Reference C++ ", TMH, 2003 (unit – III)
6	Mark Allen Weiss , "Data Structures and Algorithm Analysis in C", Pearson Education 2002.(unit – III)
7	Company question papers(Unit I-III)
6	HR Interview Guide by Training cell (unit IV)

EVALUATION CRITERIA

S.No.	Particular	Test Portion	Marks
1	Evaluation I, Written Test	Unit 1 – Aptitude – 50 OQs, Written Communication & Comprehension – 50 OQs	25
2	Evaluation II Written Test	Unit II – Verbal Reasoning – 50 OQs, Non-verbal Reasoning – 50OQs	25
3	Evaluation III Written Test	Unit III – C Language-50OQs, Data Structures – 25 OQs, OOPs – 25 OQs	20
4	Evaluation IV Technical & HR Interview	Unit IV Technical Interview - 6 questions (each question 2.5 marks) HR Interview – Flexibility(5 marks), Achievement orientation(5 marks), Decisiveness(5 marks).	15 15
P – Presentation C – Content		OQ – Objective type question T – Total	T = 100

Note :

1. Question paper and keys will be supplied by the training cell for written test for Evaluation I, II & III
2. Respective Departments will conduct Evaluation I, II, III & IV, correct and submit the marks obtained by the students to the Training Cell.
3. All training & Evaluation tests will be conducted on odd Saturdays, Session of 2 periods in FN & Session of 2 periods in AN & Association Session.
4. 60 Interview type questions, 10 questions from each of 6 subjects of VIth Semester are to be prepared. 1 question from each subject at random to be asked carrying 2½ marks each (6 x 2½ = 15 marks) for Technical Interview. Each section is divided into 3 groups of 22 each.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
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Semester VII								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210701G	TOTAL QUALITY MANAGEMENT	3	0	0	3	50	50	100
Objective(s)	To understand the Total Quality Management concept and principles and the various tools available to achieve Total Quality Management, statistical approach for quality control, ISO and QS certification process and its need for the industries.							
1	INTRODUCTION				Total Hrs	9		
Definition of Quality, Dimensions of Quality, Quality Planning, Quality costs - Analysis Techniques for Quality Costs, Basic concepts of Total Quality Management, Historical Review, Principles of TQM, Quality Council, Quality Statements, Deming Philosophy, Barriers to TQM Implementation.								
2	TQM PRINCIPLES				Total Hrs	9		
Customer satisfaction – Customer Perception of Quality, Customer Complaints, Service Quality, Customer Retention, Employee Involvement – Empowerment, Teams, Recognition and Reward, Performance Appraisal, Benefits, Continuous Process Improvement, Juran Trilogy, PDSA Cycle, 5S, Kaizen, Supplier Partnership – Partnering, sourcing, Supplier Selection, Supplier Rating, Relationship Development, Performance Measures-Basic Concepts, Strategy.								
3	STATISTICAL PROCESS CONTROL (SPC)				Total Hrs	9		
The tools of quality, Statistical Fundamentals – Measures of central Tendency and Dispersion, Population and Sample, Normal Curve, Control Charts for variables and attributes, Process capability, Concept of six sigma, New Management tools.								
4	TQM TOOLS				Total Hrs	9		
Benchmarking – Reasons to Benchmark, Benchmarking Process, Quality Function Deployment (QFD) – House of Quality, QFD Process, Benefits, Taguchi Quality Loss Function, Total Productive Maintenance (TPM) – Concept, Improvement Needs, FMEA – Stages, Types.								
5	QUALITY SYSTEMS				Total Hrs	9		
Need for ISO 9000 Quality Systems, ISO 9000:2000 ISO 14000 Quality Systems – Elements Concepts, Implementation, Documentation, Quality Auditing, – Requirements and Benefits, Non Conformance report.								
Total hours to be taught						45		
Text book (s) :								
1	Dale H.Besterfiled, et al., “Total Quality Management”, Pearson Education Asia, 1999. (Indian reprint 2002).							
Reference(s) :								
1	James R.Evans & William M.Lidsay, “The Management and Control of Quality”, (5th Edition), South-Western (Thomson Learning), 2002 (ISBN 0-324-06680-5).							
2	Feigenbaum.A.V. “Total Quality Management”, McGraw Hill, 1991.							
3	Jayakumar.V, Total Quality Management-Lakshmi Publications, 2006.							
4	Suburaj, Ramasamy “Total Quality Management”, TMH, 2005.							

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Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210702C	COMPONENT BASED TECHNOLOGY	3	1	0	4	50	50	100
Objective(s)	To introduces in depth JAVA, CORBA and .Net Components, To deal with fundamental properties of components technology, architecture and middleware, To learn Component Frameworks and Development in depth.							

1	INTRODUCTION	Total Hrs	9
Software Components – objects – fundamental properties of Component technology – modules – interfaces – callbacks – directory services – component architecture – components and middleware.			
2	JAVA BASED COMPONENT TECHNOLOGIES	Total Hrs	9
Threads – Java Beans – Events and connections – properties – introspection – JAR files – reflection – object serialization – Enterprise Java Beans – Distributed Object models – RMI and RMI-IIOP.			
3	CORBA COMPONENT TECHNOLOGIES	Total Hrs	9
Java and CORBA – Interface Definition language – Object Request Broker – system object model – portable object adapter – CORBA services – CORBA component model – containers – application server – model driven architecture.			
4	. NET BASED COMPONENT TECHNOLOGIES	Total Hrs	9
COM – Distributed COM – object reuse – interfaces and versioning – dispatch interfaces – connectable objects – OLE containers and servers – Active X controls – .NET components - assemblies – appdomains – contexts – reflection – remoting.			
5	COMPONENT FRAMEWORKS AND DEVELOPMENT	Total Hrs	9
Connectors – contexts – EJB containers – CLR contexts and channels – Black Box component framework – directory objects – cross-development environment – component-oriented programming – Component design and implementation tools – testing tools - assembly tools.			
Total hours to be taught			45

Text book :	
1	Clemens Szyperski, “Component Software: Beyond Object-Oriented Programming”, Pearson Education publishers, 2003.
Reference (s) :	
1	Ed Roman, “Mastering Enterprise Java Beans”, John Wiley & Sons Inc., 1999.
2	Mowbray, “Inside CORBA”, Pearson Education, 2003.
3	Freeze, “Visual Basic Development Guide for COM & COM+”, BPB Publication, 2001.
4	Hortsamann, Cornell, “CORE JAVA Vol-II” Sun Press, 2002.
5	Ramesh and Raja Sekaran, “Component Based Technology”, Sams Publishers, Chennai, 2007.
6	G.Sudha Sadasivam, “Component - Based Technology”, Wiley India Pvt. Ltd, 2008

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Information Technology</td></tr>
<tr><td colspan="9">Semester VII</td></tr>
<tr><td colspan="2" rowspan="2">Course Code</td><td colspan="2" rowspan="2">Course Name</td><td colspan="3">Hours / Week</td><td>Credit</td><td colspan="3">Maximum Marks</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210703C</td><td colspan="2">MOBILE COMPUTING</td><td>3</td><td>1</td><td>0</td><td>4</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To learn the basics of Wireless voice and data communications technologies. To build working knowledge on various telephone and satellite networks. To study the working principles of wireless LAN and its standards. To build knowledge on various Mobile Computing algorithms. To build skills in working with Wireless application Protocols to develop mobile content applications.</td></tr>
<tr><td>1</td><td colspan="4">WIRELESS COMMUNICATION FUNDAMENTALS</td><td colspan="2">Total Hrs</td><td colspan="3">9</td></tr>
<tr><td colspan="9">Introduction – Wireless transmission – Frequencies for radio transmission – Signals – Antennas – Signal Propagation – Multiplexing – Modulations – Spread spectrum – MAC – SDMA – FDMA – TDMA – CDMA – Cellular Wireless Networks.</td></tr>
<tr><td>2</td><td colspan="4">TELECOMMUNICATION NETWORKS</td><td colspan="2">Total Hrs</td><td colspan="3">11</td></tr>
<tr><td colspan="9">Telecommunication systems – GSM – GPRS – DECT – UMTS – IMT-2000 – Satellite Networks - Basics – Parameters and Configurations – Capacity Allocation – FAMA and DAMA – Broadcast Systems – DAB - DVB.</td></tr>
<tr><td>3</td><td colspan="4">WIRLESS LAN</td><td colspan="2">Total Hrs</td><td colspan="3">9</td></tr>
<tr><td colspan="9">Wireless LAN – IEEE 802.11 - Architecture – services – MAC – Physical layer – IEEE 802.11a - 802.11b standards – HIPERLAN – Blue Tooth.</td></tr>
<tr><td>4</td><td colspan="4">MOBILE NETWORK LAYER</td><td colspan="2">Total Hrs</td><td colspan="3">9</td></tr>
<tr><td colspan="9">Mobile IP – Dynamic Host Configuration Protocol - Routing – DSDV – DSR – Alternative Metrics.</td></tr>
<tr><td>5</td><td colspan="4">TRANSPORT AND APPLICATION LAYERS</td><td colspan="2">Total Hrs</td><td colspan="3">7</td></tr>
<tr><td colspan="9">Traditional TCP – Classical TCP improvements – WAP, WAP 2.0.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="8">Jochen Schiller, “Mobile Communications”, PHI/Pearson Education, Second Edition, 2003. (Unit I Chap 1, 2 &3- Unit II chap 4, 5 &6-Unit III Chap 7.Unit IV Chap 8- Unit V Chap 9&10).</td></tr>
<tr><td>2</td><td colspan="8">William Stallings, “Wireless Communications and Networks”, PHI/Pearson Education, 2002. (Unit I Chapter – 7&10-Unit II Chap 9)</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Kaveh Pahlavan, Prasanth Krishnamoorthy, “Principles of Wireless Networks”, PHI/Pearson Education, 2003</td></tr>
<tr><td>2</td><td colspan="8">Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, “Principles of Mobile Computing”, Springer, New York, 2003.</td></tr>
<tr><td>3</td><td colspan="8">Hazysztof Wesolowshi, “Mobile Communication Systems”, John Wiley and Sons Ltd, 2002.</td></tr>
</table>

<table>
<tr><td colspan="7">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2008</td></tr>
<tr><td colspan="2">Department</td><td colspan="2">Information Technology</td><td colspan="2">Programme Code &Name</td><td colspan="2">21: B.Tech. Information Technology</td></tr>
<tr><td colspan="8">Semester VII</td></tr>
<tr><td colspan="2" rowspan="2">Course Code</td><td rowspan="2">Course Name</td><td colspan="3">Hours / Week</td><td>Credit</td><td colspan="2">Maximum Marks</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210704C</td><td>GRAPHICS AND MULTIMEDIA</td><td>3</td><td>1</td><td>0</td><td>4</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="6">To impart the fundamental concepts of Computer Graphics and Multimedia. To study the graphics techniques and algorithms. To study the multimedia concepts and various I/O technologies. To enable the students to develop their creativity</td></tr>
<tr><td>1</td><td colspan="4">OUTPUT PRIMITIVES</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Overview of Graphics System – Line Drawing Algorithms - Circle and Ellipse Generating Algorithms –Two-Dimensional Geometric Transformations – Two-Dimensional Viewing.</td></tr>
<tr><td>2</td><td colspan="4">THREE-DIMENSIONAL CONCEPTS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Three-Dimensional Object Representations – Three-Dimensional Geometric and Modeling Transformations – Color models – Computer Animation</td></tr>
<tr><td>3</td><td colspan="4">MULTIMEDIA SYSTEMS DESIGN</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">An Introduction – Multimedia Applications – Multimedia System Architecture – Evolving technologies for Multimedia – Defining objects for Multimedia Systems – Multimedia Databases – Binary Image Compression Schemes – Color, Grayscale and Still-Video Image Compression – Video Image Compression.</td></tr>
<tr><td>4</td><td colspan="4">MULTIMEDIA FILE HANDLING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Data and File Format Standards –TIFF, RIFF, MIDI, TWAIN File Formats – Multimedia Input/Output Technologies – Digital Voice and Audio – Video Image and Animation – Full Motion Video – Storage and Retrieval Technologies – Magnetic Media Technology – Optical Media.</td></tr>
<tr><td>5</td><td colspan="4">MULTIMEDIA AUTHORING AND HYPERMEDIA MESSAGING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Multimedia Authoring Systems – Hypermedia Application Design Considerations – User Interface Design– Object Display/Playback Issues – Hypermedia Messaging – Mobile Messaging – Hypermedia Message Components – Hypermedia Linking and Embedding – Creating Hypermedia Messages –Integrated Document management – Components of Distributed Multimedia Systems.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="8">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="7">Donald Hearn and M.Pauline Baker, “Computer Graphics C Version”, Pearson Education, 2003.</td></tr>
<tr><td>2</td><td colspan="7">Prabat K Andleigh and Kiran Thakrar, “Multimedia Systems and Design”, PHI, 2003.</td></tr>
<tr><td colspan="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">Judith Jeffcoate, “Multimedia in practice technology and Applications”, PHI, 1998.</td></tr>
<tr><td>2</td><td colspan="7">Foley, Vandam, Feiner, Huges, “Computer Graphics: Principles & Practice”, Pearson Education, second edition 2003.</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology	Programme Code &Name			21: B.Tech. Information Technology			
Semester VII								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210707P	SOFTWARE COMPONENTS LABORATORY	0	0	3	2	50	50	100

LIST OF EXPERIMENTS

1. COM COMPONENT: Development of simple com components in VB and use them in applications. [2 example].
2. ENTERPRISE JAVA BEANS: Deploying EJB for simple arithmetic operator.
3. RMI: Deploying RMI for client server applications. [2 Experiments].
4. Creation Of DLL Using VB And Deploy it in Java [2 Experiments]
5. Naming Services In CORBA
6. DSI, DII IN CORBA.
7. INTER ORB IN COMMUNICATION [IIOP, IOR]
8. STUDYING J2EE SERVER.
9. SIMPLE APPLICATION USING CORBA.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
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		L	T	P	C	CA	ES	Total
08210708P	GRAPHICS AND MULTIMEDIA LABORATORY	0	0	3	2	50	50	100

LIST OF EXPERIMENTS

1. DDA and Bresenham's line drawing algorithms for line.
2. Mid-point circle and ellipse generation algorithms.
3. 2D Transformations such as translation, rotation, scaling, reflection and sharing.
4. Cohen-Sutherland 2D clipping
5. 3D Transformations such as translation, rotation and scaling.
6. Projections of 3D images.
7. Conversions between color models.
8. Text compression.
9. Simple animation.
10. Preparation of E-book publishing material.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
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Semester VII								
Course Code	Course Name	Hours/Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210710P	CAREER COMPETENCY DEVELOPMENT V	0	0	2	0	100	00	100
Objective(s)	i. To encourage the all round development of students by focusing on soft skills. ii.To improve the employability of students.							

1	Company type written test in Aptitude, Written Communication Skills	Hrs
Software and Core company based questions - Questions from Quantitative Ability, Analytical reasoning, Logical reasoning, Written communication, Programming and Technical Skills. Evaluation I Written Test		6 2
2	Group Discussion	
Strategies in GD – Team work – Body Language – Mock GDs – Video Samples Evaluation II – Group Discussion		6 2
3	Interview Skills(Technical Interview)	
Keyword discussions on core subjects -Complex problem solving in programming and core subjects - Mock Technical Interviews Evaluation III Technical Interview		6 2
4	Interview Skills(HR Interview)	
Kinds of HR Interviews – Corporate culture – Mock Interviews – Video Samples Evaluation IV – HR Interview.		6 2
	Total	32

Reference(s):

1	R.S.Aggarwal , "Quantitative Aptitude", S.Chand & Company Ltd., New Delhi, Reprint 2007 (Twice) (unit – I)
2	CCD Guide by English Department of KSRCT, 2008 (Unit – I)
3	R.S.Aggarwal , "A Modern Approach to verbal & Non – verbal Reasoning", S.Chand & Company Ltd, New Delhi, 2008, (unit – I)
4	Company question papers(unit I)
5	Yashavant Kanetkar, " Let us 'C' ", BPB Publications, New Delhi, 2002 (unit – I)
6	Herbert Schildt, " The Complete Reference C++ ", TMH, 2003 (unit – I)
7	HR Interview Guide by Training cell (unit IV)

EVALUATION CRITERIA

S.No.	Particular	Test Portion	Marks
1	Evaluation I Written Test	Unit I – Questions from Software and core companies	40
2	Evaluation II	Unit II - Group Discussion	20
3	Evaluation III	Unit III – Technical Interview	20
4	Evaluation IV	Unit IV - HR Interview	20
Total			T = 100

Note :

1. Question papers and keys will be supplied by the training cell for written test for Evaluation I
2. Respective Departments will conduct Evaluation II, III & IV, correct and submit the marks obtained by the students to the Training Cell.
3. All training & Evaluation tests will be conducted on odd Saturdays, Session of 2 periods in FN & Session of 2 periods in AN & Association Session.
4. Each section is divided into groups and conduct Aptitude test, mock group discussions, interviews in every alternate Saturdays.

<table>
<tr><td colspan="8">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2008</td></tr>
<tr><td colspan="2">Department</td><td colspan="2">Information Technology</td><td colspan="2">Programme Code &Name</td><td colspan="3">21: B.Tech.
Information Technology</td></tr>
<tr><td colspan="9">Semester VIII</td></tr>
<tr><td colspan="2" rowspan="2">Course Code</td><td colspan="2" rowspan="2">Course Name</td><td colspan="3">Hours / Week</td><td>Credit</td><td colspan="3">Maximum Marks</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210801C</td><td colspan="2">SYSTEM SOFTWARE</td><td>3</td><td>1</td><td>0</td><td>4</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To understand the relationship between system software and machine architecture. To know the design and implementation of assemblers. To know the design and implementation of linkers and loaders. To have an understanding of macro processors. To have an understanding of system software tools.</td></tr>
<tr><td>1</td><td colspan="5">INTRODUCTION</td><td colspan="2">Total Hrs</td><td>8</td></tr>
<tr><td colspan="9">System software and machine architecture – The Simplified Instructional Computer (SIC) – Machine architecture – Data and instruction formats – addressing modes – instruction sets – I/O and programming.</td></tr>
<tr><td>2</td><td colspan="5">ASSEMBLERS</td><td colspan="2">Total Hrs</td><td>10</td></tr>
<tr><td colspan="9">Basic assembler functions – A simple SIC assembler – Assembler algorithm and data structures – Machine dependent assembler features – Instruction formats and addressing modes – Program relocation – Machine independent assembler features – Literals – Symbol-defining statements – Expressions – One pass assemblers and Multi pass assemblers – Implementation example – MASM assembler.</td></tr>
<tr><td>3</td><td colspan="5">LOADERS AND LINKERS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Basic loader functions – Design of an Absolute Loader – A Simple Bootstrap Loader – Machine dependent loader features – Relocation – Program Linking – Algorithm and Data Structures for Linking Loader – Machine-independent loader features – Automatic Library Search – Loader Options – Loader design options – Linkage Editors – Dynamic Linking – Bootstrap Loaders – Implementation example – MSDOS linker.</td></tr>
<tr><td>4</td><td colspan="5">MACRO PROCESSORS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Basic macro processor functions – Macro Definition and Expansion – Macro Processor Algorithm and data structures – Machine-independent macro processor features – Concatenation of Macro Parameters – Generation of Unique Labels – Conditional Macro Expansion – Keyword Macro Parameters-Macro within Macro-Implementation example – MASM Macro Processor – ANSI C Macro language.</td></tr>
<tr><td>5</td><td colspan="5">SYSTEM SOFTWARE TOOLS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Text editors – Overview of the Editing Process – User Interface – Editor Structure. – Interactive debugging systems – Debugging functions and capabilities – Relationship with other parts of the system – User-Interface Criteria.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="8">Leland L. Beck, “System Software – An Introduction to Systems Programming”, 3rd Edition, Pearson Education Asia, 2000.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">D. M. Dhamdhere, “Systems Programming and Operating Systems”, Second Revised Edition, Tata McGraw-Hill, 1999.</td></tr>
<tr><td>2</td><td colspan="8">John J. Donovan “Systems Programming”, Tata McGraw-Hill Edition, 1972.</td></tr>
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<tr><td colspan="8">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2008</td></tr>
<tr><td colspan="2">Department</td><td colspan="3">Information Technology</td><td colspan="2">Programme Code & Name</td><td colspan="2">21: B.Tech. Information Technology</td></tr>
<tr><td colspan="9">Semester VI</td></tr>
<tr><td colspan="2" rowspan="2">Course Code</td><td rowspan="2">Course Name</td><td colspan="3">Hours / Week</td><td>Credit</td><td colspan="3">Maximum Marks</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210641E</td><td>COMPILER DESIGN</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To understand, design and implement a lexical analyzer, understand, design and implement a parser, understand optimization of codes and runtime environment.</td></tr>
<tr><td>1</td><td colspan="5">INTRODUCTION TO COMPILERS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Compilers – Analysis of the source program – Phases of a compiler – Cousins of the Compiler – Grouping of Phases – Compiler construction tools - Lexical Analysis - Role of Lexical Analyzer – Input Buffering – Specification of Tokens.</td></tr>
<tr><td>2</td><td colspan="5">SYNTAX ANALYSIS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Role of the parser –Writing Grammars –Context-Free Grammars – Top Down parsing - Recursive Descent Parsing - Predictive Parsing – Bottom-up parsing - Shift Reduce Parsing – Operator Precedent Parsing - LR Parsers - SLR Parser - Canonical LR Parser - LALR Parser.</td></tr>
<tr><td>3</td><td colspan="5">INTERMEDIATE CODE GENERATION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Intermediate languages – Declarations – Assignment Statements – Boolean Expressions – Case Statements – Back patching – Procedure calls.</td></tr>
<tr><td>4</td><td colspan="5">CODE GENERATION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Issues in the design of code generator – The target machine – Runtime Storage management – Basic Blocks and Flow Graphs – Next-use Information – A simple Code generator – DAG representation of Basic Blocks – Peephole Optimization.</td></tr>
<tr><td>5</td><td colspan="5">CODE OPTIMIZATION AND RUN TIME ENVIRONMENTS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Introduction– Principal Sources of Optimization – Optimization of basic Blocks – Introduction to Global Data Flow Analysis – Runtime Environments – Source Language issues – Storage Organization – Storage Allocation strategies – Access to non-local names – Parameter Passing.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">Alfred Aho, Ravi Sethi, Jeffrey D Ullman, “Compilers Principles, Techniques and Tools”, Pearson Education Asia, 2003.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Allen I. Holub “Compiler Design in C”, Prentice Hall of India, 2003.</td></tr>
<tr><td>2</td><td colspan="8">C. N. Fischer and R. J. LeBlanc, “Crafting a compiler with C”, Benjamin Cummings, 2003.</td></tr>
<tr><td>3</td><td colspan="8">J.P. Bennet, “Introduction to Compiler Techniques”, Second Edition, Tata McGraw-Hill, 2003.</td></tr>
<tr><td>4</td><td colspan="8">Henk Alblas and Albert Nymeyer, “Practice and Principles of Compiler Building with C”, PHI, 2001.</td></tr>
<tr><td>5</td><td colspan="8">Kenneth C. Louden, “Compiler Construction: Principles and Practice”, Thompson Learning, 2003.</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology	Programme Code & Name			21: B.Tech. Information Technology			
Semester VI								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210642E	DISCRETE MATHEMATICS	3	0	0	3	50	50	100
Objective(s)	At the end of the course, students would, have knowledge of the concepts needed to test the logic of a program, have gained knowledge which has application in expert system, in data base and a basic for the prolog language, have an understanding in identifying patterns on many levels, be aware of a class of functions which transform a finite set into another finite set which relates to input output functions in computer science, be exposed to concepts and properties of algebraic structures such as semi groups, monoids and groups.							

1	PROPOSITIONAL CALCULUS	Total Hrs	9
Propositions – Logical connectives – Compound propositions – Conditional and biconditional propositions – Truth tables – Tautologies and contradictions – Contrapositive – Logical equivalences and implications – DeMorgan's Laws - Normal forms – Principal conjunctive and disjunctive normal forms – Rules of inference – Arguments - Validity of arguments.			
2	PREDICATE CALCULUS	Total Hrs	9
Predicates – Statement function – Variables – Free and bound variables – Quantifiers – Universe of discourse – Logical equivalences and implications for quantified statements – Theory of inference – The rules of universal specification and generalization – Validity of arguments.			
3	SET THEORY	Total Hrs	9
Basic concepts – Notations – Subset – Algebra of sets – The power set – Ordered pairs and Cartesian product – Relations on sets –Types of relations and their properties – Relational matrix and the graph of a relation – Equivalence relations –functions – Classification of functions –Type of functions - Examples – Composition of functions – Inverse functions.			
4	LATTICE & BOOLEAN ALGEBRA	Total Hrs	9
Partial ordering – Poset – Hasse diagram – Lattices and their properties – sublattices - Boolean Algebra – representation and minimization of Boolean function.			
5	GROUPS	Total Hrs	9
Algebraic systems – Definitions – Examples – Properties – Semigroups – Monoids – Homomorphism – Sub semigroups and Submonoids - Cosets and Lagrange's theorem – Normal subgroups.			
Total hours to be taught			45

Text book (s) :	
1	Trembly J.P and Manohar R, "Discrete Mathematical Structures with Applications to Computer Science", Tata McGraw–Hill Pub. Co. Ltd, New Delhi, 2003.
2	Ralph. P. Grimaldi, "Discrete and Combinatorial Mathematics: An Applied Introduction", Fourth Edition, Pearson Education Asia, Delhi, 2002.
Reference (s) :	
1	Bernard Kolman, Robert C. Busby, Sharan Cutler Ross, "Discrete Mathematical Structures", Fourth Indian reprint, Pearson Education Pvt Ltd., New Delhi, 2003.
2	Kenneth H.Rosen, "Discrete Mathematics and its Applications", Fifth Edition, Tata McGraw – Hill Pub. Co. Ltd., New Delhi, 2003.
3	Richard Johnsonbaugh, "Discrete Mathematics", Fifth Edition, Pearson Education Asia, New Delhi, 2002.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology	Programme Code & Name			21: B.Tech. Information Technology			
Semester VI								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210643E	EMBEDDED SYSTEMS	3	0	0	3	50	50	100
Aim	To give sufficient background for undertaking embedded systems design.							
Objective(s)	To introduce students to the embedded systems, its hardware and software, introduce devices and buses used for embedded networking, explain programming concepts and embedded programming in C and C++, explain real time operating systems, inter-task communication and an exemplary case of MUCOS – IIRTOS.							

1	INTRODUCTION TO EMBEDDED SYSTEMS	Total Hrs	9
Definition and Classification – Overview of Processors and hardware units in an embedded system – Software embedded into the system – Exemplary Embedded Systems – Embedded Systems on a Chip (SoC) and the use of VLSI designed circuits.			
2	DEVICES AND BUSES FOR DEVICES NETWORK	Total Hrs	9
I/O Devices - Device I/O Types and Examples – Synchronous - Iso-synchronous and Asynchronous Communications from Serial Devices - Examples of Internal Serial-Communication Devices - UART and HDLC - Parallel Port Devices - Timer and Counting Devices - '12C', 'USB', 'CAN' and advanced I/O Serial high speed buses- ISA, PCI, PCI-X, cPCI and advanced buses.			
3	PROGRAMMING CONCEPTS AND EMBEDDED PROGRAMMING IN C	Total Hrs	9
Programming in assembly language (ALP) vs. High Level Language - C Program Elements, Macros and functions -Use of Pointers - NULL Pointers - Use of Function Calls – Multiple function calls in a Cyclic Order in the Main Function Pointers – Function Queues and Interrupt Service Routines Queues Pointers – 'C' Program compilers – Cross compiler – Optimization of memory codes.			
4	REAL TIME OPERATING SYSTEMS – PART – 1	Total Hrs	9
Definitions of process, tasks and threads – Interrupt Routines Handling in RTOS, REAL TIME OPERATING SYSTEMS : RTOS Task scheduling models - Handling of task scheduling and latency and deadlines as performance metrics – Co-operative Round Robin Scheduling – Cyclic Scheduling with Time Slicing (Rate Monotonics Co-operative Scheduling) – Preemptive Scheduling Model strategy by a Scheduler – Critical Section Service by a Preemptive Scheduler – Fixed (Static) Real time scheduling of tasks - INTER PROCESS COMMUNICATION AND SYNCHRONISATION – Shared data problem – Use of Semaphore(s) – Priority Inversion Problem and Deadlock Situations – Inter Process Communications using Signals – Semaphore Flag or mutex as Resource key – Message Queues – Mailboxes – Pipes – Virtual (Logical) Sockets – Remote Procedure Calls (RPCs).			
5	REAL TIME OPERATING SYSTEMS – PART - 2	Total Hrs	9
Study of Micro C/OS-II or Vx Works or Any other popular RTOS – RTOS System Level Functions – Task Service Functions – Time Delay Functions – Memory Allocation Related Functions – Semaphore Related Functions – Mailbox Related Functions – Queue Related Functions – Case Studies of Programming with RTOS – Understanding Case Definition – Multiple Tasks and their functions – Creating a list of tasks – Functions and IPCs – Exemplary Coding Steps.			
Total hours to be taught			45

Text book :

1	Rajkamal, Embedded Systems Architecture, Programming and Design, TATA McGraw-Hill, First reprint Oct. 2003.

Reference (s) :

1	Steve Heath Embedded Systems Design, Second Edition-2003, Newnes.
2	David E.Simon, An Embedded Software Primer, Pearson Education Asia, First Indian Reprint 2000.
3	Wayne Wolf, Computers as Components; Principles of Embedded Computing System Design – Harcourt India, Morgan Kaufman Publishers, First Indian Reprint 2001.
4	Frank Vahid and Tony Givargis, Embedded Systems Design – A unified Hardware /Software Introduction, John Wiley, 2002.

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<tr><td colspan="9">Semester – VI</td></tr>
<tr><td colspan="2" rowspan="2">Course Code</td><td rowspan="2">Course Name</td><td colspan="3">Hours / Week</td><td>Credit</td><td colspan="3">Maximum Marks</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210644E</td><td>SOFTWARE QUALITY MANAGEMENT</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To Understand the Concept & Software Quality Management, understand the software process Assessment, understand the software configuration Management, understand the software standards, understand the software Testing Principles, Understand the Principles & detect Prevention in software.</td></tr>
<tr><td>1</td><td colspan="5">INTRODUCTION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Software Process assessment overview – Assessment phases – assessment principles – Assessment conduct – Implementation consideration – Quality management – Quality assurance plan – Considerations – Verification and Validation.</td></tr>
<tr><td>2</td><td colspan="5">CONFIGURATION MANAGEMENT</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Need for configuration Management – Software product nomenclature – configuration management functions – Baselines – Responsibilities – Need for automated tools – plan – SCM support functions – The requirement phase Design control – The implementation phase – Test phase – SCM Tools – Configuration accounting and audit.</td></tr>
<tr><td>3</td><td colspan="5">SOFTWARE STANDARDS AND INSPECTION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Definitions – Reason for software standards – Benefits – Establishing standards – Guidelines – Types of reviews – Inspection of objectives – Basic inspection principles – The conduct of inspection – Inspection training.</td></tr>
<tr><td>4</td><td colspan="5">TESTING AND MANAGEMENT SOFTWARE QUALITY</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Testing: principles – Types – Planning – Development – Execution and reporting – Tools and methods - Real Time testing – Quality management paradigm – Quality motivation – Measurement criteria – Establishing a software quality program – Estimating software quality.</td></tr>
<tr><td>5</td><td colspan="5">DEFCT PREVENTION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Principles of software defect prevention – Process changes for defect prevention – Defect prevention consideration – Managements role – Framework for software process change – Managing resistance to software process change.</td></tr>
<tr><td colspan="8">Total hours to be Taught</td><td>45</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">Watts S. Humphrey, Managing the software process, Addison Wesley, 1999.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Tsum S.Chow, Software Quality Assurance a Practical Approach, IEEE Computer Society press, 1985.</td></tr>
<tr><td>2</td><td colspan="8">Richard E. Fairley, Software Engineering – A Practitioner’s approach, McGraw Hill, 1982.</td></tr>
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<tr><td colspan="2">Department</td><td colspan="2">Information Technology</td><td colspan="2">Programme Code & Name</td><td colspan="3">21: B.Tech. Information Technology</td></tr>
<tr><td colspan="9">Semester VI</td></tr>
<tr><td colspan="2" rowspan="2">Course Code</td><td rowspan="2">Course Name</td><td colspan="3">Hours / Week</td><td>Credit</td><td colspan="3">Maximum Marks</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210645E</td><td>CRYPTOGRAPHY AND NETWORK SECURITY</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Aim</td><td colspan="7">To understand the principles of encryption algorithms, conventional and public key cryptography, have a detailed knowledge about authentication, hash functions and application level security mechanisms.</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To know the methods of conventional encryption, understand the concepts of public key encryption and number theory, understand authentication and Hash functions, know the network security tools and applications, understand the system level security used.</td></tr>
<tr><td>1</td><td colspan="5">INTRODUCTION</td><td colspan="2">Total Hrs</td><td>10</td></tr>
<tr><td colspan="8">OSI Security architecture - Classical encryption techniques – Cipher principles – Data Encryption Standard – Block cipher design principles and modes of operation - Evaluation criteria for AES – AES cipher – Triple DES – Placement of encryption function – Traffic confidentiality.</td></tr>
<tr><td>2</td><td colspan="5">PUBLIC KEY CRYPTOGRAPHY</td><td colspan="2">Total Hrs</td><td>10</td></tr>
<tr><td colspan="8">Key management – Diffie - Hellman key exchange – Elliptic curve architecture and cryptography - Introduction to Number Theory – Confidentiality using symmetric encryption – Public key cryptography and RSA.</td></tr>
<tr><td>3</td><td colspan="5">AUTHENTICATION AND HASH FUNCTION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Authentication requirements – Authentication functions – Message authentication codes – Hash functions – Security of hash functions and MACs – MD5 Message Digest algorithm - Secure Hash Algorithm – RIPEMD – HMAC digital signatures – Authentication protocols – Digital Signature Standard.</td></tr>
<tr><td>4</td><td colspan="5">NETWORK SECURITY</td><td colspan="2">Total Hrs</td><td>8</td></tr>
<tr><td colspan="8">Authentication applications: Kerberos – X.509 Authentication service – Electronic mail security – PGP – S/MIME - IP security – Web security.</td></tr>
<tr><td>5</td><td colspan="5">SYSTEM LEVEL SECURITY</td><td colspan="2">Total Hrs</td><td>8</td></tr>
<tr><td colspan="8">Intrusion detection – password management – Viruses and related Threats – Virus counter measures – Firewall design principles – Trusted systems.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="8">Text book :</td></tr>
<tr><td>1</td><td colspan="7">William Stallings, “Cryptography And Network Security – Principles and Practices”, Prentice Hall of India, Third Edition, 2003.</td></tr>
<tr><td colspan="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">Atul Kahate, “Cryptography and Network Security”, Tata McGraw-Hill, 2003.</td></tr>
<tr><td>2</td><td colspan="7">Bruce Schneier, “Applied Cryptography”, John Wiley & Sons Inc, 2001.</td></tr>
<tr><td>3</td><td colspan="7">Charles B. Pfleeger, Shari Lawrence Pfleeger, “Security in Computing”, Third Edition, Pearson Education, 2003.</td></tr>
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<tr><td colspan="2">08210646E</td><td colspan="2">ADVANCED JAVA PROGRAMMING</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Aim</td><td colspan="7">To enable the students to design and develop enterprise strength distributed and multi-tier applications – Using Java Technology.</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To learn advanced Java programming concepts like reflection, native code interface, threads, etc, develop network programs in Java, understand Concepts needed for distributed and multi-tier applications; understand issues in enterprise applications development.</td></tr>
<tr><td>1</td><td colspan="5">JAVA FUNDAMENTALS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Java I/O streaming – filter and pipe streams – Byte code interpretation - reflection – Dynamic Reflexive Classes – Threading – Java Native Interfaces- Swing.</td></tr>
<tr><td>2</td><td colspan="5">NETWORK PROGRAMMING IN JAVA</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Sockets – secure sockets – custom sockets – UDP datagrams – multicast sockets – URL classes – reading data from the server – writing data – configuring the connection – reading the header – telnet application – Java messaging services.</td></tr>
<tr><td>3</td><td colspan="5">APPLICATIONS IN DISTRIBUTED ENVIRONMENT</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Remote method Invocation – activation models – RMI custom sockets – object serialization – RMI – IIOP implementation – CORBA – IDL technology – Naming Services – CORBA programming models - JAR file creation.</td></tr>
<tr><td>4</td><td colspan="5">MULTI-TIER APPLICATION DEVELOPMENT</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Server side programming – servlets – Java Server Pages - Applet to Applet communication – applet to Servlet communication - JDBC – using BLOB and CLOB objects – storing multimedia data into databases – multimedia streaming applications – Java media Framework.</td></tr>
<tr><td>5</td><td colspan="5">ENTERPRISE APPLICATIONS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Server side component architecture – introduction to J2EE – session beans – entity beans – Persistent entity beans – Transactions.</td></tr>
<tr><td colspan="8">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="9">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="8">Elliotte Rusty Harold, “ Java Network Programming”, O’Reilly publishers, 2000 (UNIT II)</td></tr>
<tr><td>2</td><td colspan="8">Ed Roman, “Mastering Enterprise Java Beans”, John Wiley & Sons Inc., 1999. (UNIT III and UNIT V)</td></tr>
<tr><td>3</td><td colspan="8">Hortsmann & Cornell, “CORE JAVA 2 ADVANCED FEATURES, VOL II”, Pearson Education, 2002. (UNIT I and UNIT IV).</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Web reference: http://java.sun.com.</td></tr>
<tr><td>2</td><td colspan="8">Patrick Naughton, “COMPLETE REFERENCE: JAVA2”, Tata McGraw-Hill, 2003.</td></tr>
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<tr><td colspan="2">08210647E</td><td>FUNDAMENTALS OF IT</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To introduce the fundamentals of computer hardware and system software and to introduce basic TDBMS concepts.</td></tr>
<tr><td>1</td><td colspan="5">COMPUTER ARCHITECTURE AND SYSTEM SOFTWARE</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Fundamentals of Computer Architecture – Organization of Small Computer – Execution of the Instructions – Input/output Devices – Measure of CPU Performance – Addressing modes – System Software – Assemblers – Loaders and linkers – Compilers and interpreters.</td></tr>
<tr><td>2</td><td colspan="5">OPERATING SYSTEMS AND COMPUTER NETWORKS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Operating system – memory management – Process management – File System Management – File Permissions – New Technology File System – Device Management – Computer Networks – Motivation and need for Computer Networks – Network topology – The OSI model – Important Routing devices – Types of Networks.</td></tr>
<tr><td>3</td><td colspan="5">RDBMS AND DATABASE DESIGN</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Introduction to DBMS – data processing – the database technology – data models – RDBMS – ER modeling concept – Notations – Normalization – Need for Normalization – Process of Normalization – Types of Normal forms.</td></tr>
<tr><td>4</td><td colspan="5">SQL</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">SQL – The purpose of SQL – History of SQL – Data types – Statement Types – DDL statements – DML statements – Views – DCL statements – Embedded SQL – Best Practices.</td></tr>
<tr><td>5</td><td colspan="5">OLTP CONCEPTS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">OLTP – Purpose – Transaction – Transaction Systems – Transaction Properties – Requirements for an OLTP System – Locks – Granularity of Locking – Intent Looking – Dead Lock – Time stamping – Security & Recovery Transaction log.</td></tr>
<tr><td colspan="8">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="9">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="8">Foundation Program Books Vol-1 and Vol-2, Infosys.</td></tr>
<tr><td colspan="9">Reference(s) :</td></tr>
<tr><td>1</td><td colspan="8">Andrew S. Tanenbaum, Structured Computer Organization, PHI, 3rd ed., 1991.</td></tr>
<tr><td>2</td><td colspan="8">Silberschatz and Galvin, Operating System Concepts, 4th ed., Addision-Wesley, 1995.</td></tr>
<tr><td>3</td><td colspan="8">Henry F Korth, Abraham Silberschatz, Database System Concept, 2nd ed McGraw-Hill International editions, 1991.</td></tr>
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K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology	Programme Code &Name			21: B.Tech. Information Technology			
Semester VII								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210751E	CLIENT/SERVER COMPUTING	3	0	0	3	50	50	100
Aim	To enable the students to design and develop enterprise strength distributed and multi-tier applications – Using Java Technology.							
Objective(s)	To learn advanced Java programming concepts like reflection, native code interface, threads, etc, develop network programs in Java, understand Concepts needed for distributed and multi-tier applications; understand issues in enterprise applications development.							

1	INTRODUCTION	Total Hrs	9
Client Server Computing era, Real Client /Server, Fat Servers or fat clients, 2 tier Vs 3 Tier, Intergalactic client server, client server for different models, building blocks.			
2	CLIENT / SERVER OPERATING SYSTEMS	Total Hrs	9
Anatomy of Server Programs, Server needs from OS ,Server scalability, Client anatomy, Client OS trends, MAC OS, Linux OS, Win OS Server OS trends, NetWare, Win 2000 Server, OS/2 warp server			
3	CLIENT SERVER MIDDLEWARE	Total Hrs	9
NOS Middleware global directory service, distributed time service, distributed security services, RPC messaging and peer to peer Sockets, NetWare, NetBIOS, remote procedure call, messaging and queuing, MOM Vs RPC, Evolution of the NOS, DEC, The enterprise NOS, the internet as NOS			
4	CLIENT SERVER TRANSACTION PROCESSING	Total Hrs	9
ACID Properties, Transaction Models, TP Monitor, TP Monitor and OS, TP Monitor and Transaction Management, TP Monitor Client / Server Interaction types, transactional RPC, Queues, TP Lite or TP Heavy, TP Lite versus TP Heavy - Managing Heterogeneous resources Process Management.			
5	CLIENT SERVER AND INTERNET	Total Hrs	9
Web Client Server – Web Style, HTML Tutorial, HTTP,Web Client / Server -3-Tier Client Server, Web style, HTML 2.0 ‘s Web – Bared forms, CGI, Wed Selurity, The Internet and Intranets, The Jave object Era – Jave Applets, The Distributed object Era – Java Meets CORBA, Compound Documents and the object Web, Dcom, OLE object.			
Total hours to be taught			45
Reference Books (s) :			
1	Robert Orfail, Dan Harkey Jeri Edwards, “Essential Client /Server Survival Guide”, Second edition, John Wiley & Sons, Singapore, 2003.		
2	James E.Goldman, Phillip T.Rawles, Julie R.Mariga,” Client / Server Information Systems, A Business Oriented Approach”,John Wiley& Sons, Singapore, 2000.		
3	Eric J Johnson, ”A complete guide to Client / Server Computing”, First edition, Prentice Hall New Delhi, 2001.		
4	Smith & Guengerich,” Client / Server Computing “, Prentice Hall,New Delhi, 2002		

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<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210752E</td><td>DISTRIBUTED COMPUTING</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To understand the concept of distributed computing. To know the issues of operating systems.
To understand the concept of distributed processing.</td></tr>
<tr><td>1</td><td colspan="5">INTRODUCTION</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Introducing- Goals – hardware concepts- bus based multiprocessor- switched multiprocessor – bus based multicomputer – switched multicomputer – software concepts – network operating system – True distributed system – Multiprocessor time sharing system – desing issues – transparency – Flexibility – reliability – Performance and Scalability.</td></tr>
<tr><td>2</td><td colspan="5">Processes and distributed objects</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Communication – Layered Protocols - ATM networks – Client server model – remote procedure call – group communication.</td></tr>
<tr><td>3</td><td colspan="5">Operating System Issues - I</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Synchornization – Clock Synchronization – Mutual Exclusion – Election Algorithms – Atomic transaction – Deadlock – Threads – System models – Processor Allocation – Scheduling – fault tolerance – Real time system.</td></tr>
<tr><td>4</td><td colspan="5">Operating System Issues - II</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Distributed file systems Distributed file system design – implementation – file models – fault tolerance - file replication –multimedia.</td></tr>
<tr><td>5</td><td colspan="5">Distributed Processing</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Distributed shared memory - consistency models – page based distributed shared memory – shared variable distributed shared memory – Distributed programming languages – case studies.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">Andrew S.Tanenbaum,”Distributed Operating Systems”, Pearson Education Asia, 2001.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Mukesh singhal and niranjan G.Shivaratri, “Advanced concepts in Operating system, Tata McGraw Hill.</td></tr>
<tr><td>2</td><td colspan="8">Pradeep.k and Sinha,” Distributed operating systems,PHI, Newdelhi, 2001</td></tr>
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Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
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08210753E	GRID COMPUTING	3	0	0	3	50	50	100
Objective(s)	To understand the concept of grid computing. To know the application of grid computing. To understanding the technology and tool kits to facilitated the grid computing.							
1	GRID COMPUTING				Total Hrs	9		
Introduction - Definition - Scope of grid computing								
2	GRID COMPUTING INITIATIVES				Total Hrs	9		
Grid Computing Organizations and their roles – Grid Computing anatomy – Grid Computing road map.								
3	GRID COMPUTING APPLICATIONS				Total Hrs	9		
Merging the Grid sources – Architecture with the Web Devices Architecture.								
4	TECHNOLOGIES				Total Hrs	9		
OGSA – Sample use cases – OGSA platform components – OGSI – Introduction, Grid Services , A high-level Introduction to OGSI , Technical details of OGSI Specification –OGSA Basic Services								
5	GRID COMPUTING TOOL KITS				Total Hrs	9		
Globus Toolkit – Architecture, Programming model, High level services								
Total hours to be taught						45		
Text book :								
1	Joshy Joseph & Craig Fellenstein, “Grid Computing”, PHI, PTR-2003.							
Reference (s) :								
1	Ahmar Abbas, “Grid Computing: A Practical Guide to technology and Applications”, Charles River media – 2003.							
2	D.Janakiram, ”Grid Computing”: A Research Monograph, Tata McGraw-Hill,2005							

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<tr><td colspan="2">08210754E</td><td colspan="2">HIGH PERFORMANCE NETWORKS</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To understand the concept of High Performance Networks. To know the application of High Performance Networks. To understanding the technology to facilitated the High Performance Networks</td></tr>
<tr><td>1</td><td colspan="5">INTRODUCTION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Communication networks, network principles, applications, QoS, (network and application), Traffic characterization, network services, elements, mechanisms.</td></tr>
<tr><td>2</td><td colspan="5">BROADBAND ISDN</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">B – ISDN architecture - Main Features of ATM, cell format & Switching Addressing, signaling and routing, ATM traffic and congestion control, Flow control, error detection and error control, internetworking with ATM.</td></tr>
<tr><td>3</td><td colspan="5">WIRELESS NETWORK</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Wireless LAN – infrastructure, ADHOC network, IEEE 802.11 – architecture, MAC layer management; HIPER LAN – Channel Access and MAC sub layers; Blue tooth – user scenarios, Networking and security - Wireless ATM.</td></tr>
<tr><td>4</td><td colspan="5">OPTICAL NETWORKS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Optical links, WDM systems, optical cross connects, optical LANS, optical paths and networks</td></tr>
<tr><td>5</td><td colspan="5">PERFORMANCE MEASURES</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">ATM networks – cell transfer delay, cell delay variation, cell loss ratio, buffer over flow probability; wireless network – QoS parameters.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">Jean Walrand and Pravin Varaiya, “High Performance Communication networks”, HARCOURT Asia PTE Ltd., 2nd edition, 2001. Chapters 1, 2, 11.</td></tr>
<tr><td>2</td><td colspan="8">Stallings, “ISDN and broadband ISDN with frame relay and ATM”, Pearson Education Asia, Fourth , 2001. Chapters 14, 16, 17, Appendix A.</td></tr>
<tr><td>3</td><td colspan="8">Kaveh Pahlavan, Prashant Krishnamurthy, “Principles of Wireless Networks”, Pearson Education Asia, First Edition, 2002, Chapters 10, 11, 12, 13.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Walter Goralski, “Optical Networking and WDM”, Tata McGraw-Hill, 2001.</td></tr>
<tr><td>2</td><td colspan="8">Neelakanta P.S., “A textbook on ATM Telecommunication Principles and Implementation”, CRC Press, First edition; 2000.</td></tr>
<tr><td>3</td><td colspan="8">John A. Vacca, “Wireless Broadband Networks Handbook”, Tata McGraw- Hill, 2001.</td></tr>
<tr><td>4</td><td colspan="8">Tom Sheldon, “Encyclopedia of Networking and Telecommunication”, Tata McGraw-Hill, 2001.</td></tr>
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<tr><td colspan="2">08210755E</td><td colspan="2">IT ESSENTIALS</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To introduce and various essential concepts of IT</td></tr>
<tr><td>1</td><td colspan="6">ANALYSIS OF ALGORITHMS</td><td>Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Introduction of ADA – Code Tuning Techniques – Analysis of Algorithms – Analysis of Some Known Algorithms – Algorithmic Techniques – Linear search – Binary search – Bubble sort – Quick sort – Merge sort – Selection sort – Insertion sort – Intractable Problems.</td></tr>
<tr><td>2</td><td colspan="6">OBJECT ORIENTED CONCEPTS</td><td>Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Introduction to Object oriented concepts – Advanced concepts in Object oriented technology – relationship – Inheritance – Abstract classes – Polymorphism – Object oriented design methodology – Recent trends in OO Technology.</td></tr>
<tr><td>3</td><td colspan="6">SYSTEM DEVELOPMENT METHODOLOGY</td><td>Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">System Development Methodology – Evolution of Software – Software Development Models – Requirement Analysis and Design – Software Construction – Software Testing – Software Quality.</td></tr>
<tr><td>4</td><td colspan="6">CLIENT SERVER CONCEPTS</td><td>Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Client server computing – Back Ground – Client Server Technologies – Middle ware technologies – Introduction to Web Technology.</td></tr>
<tr><td>5</td><td colspan="6">WEB TECHNOLOGIES & USER INTERFACE DESIGN</td><td>Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">The world wide web – Web Application – Security in Applications – issues in web based application – Introduction to User interface Design (UID) – The elements of UID –UID Tips and techniques – Good Vs Bad User Interface – Reports.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="8">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="7">Foundation Program Books Vol-2 and Vol-3, Infosys.</td></tr>
<tr><td colspan="8">Reference(s) :</td></tr>
<tr><td>1</td><td colspan="7">Brad J.Cox, Andrew J.Novobilski, Object – Oriented Programming – An evolutionary approach, Addison – Wesley, 1991</td></tr>
<tr><td>2</td><td colspan="7">Alfred V.Aho,John E.Hopcroft, Jeffrey D.Ullman, Design and Analysis of Computer Algorithms, Addison Wesley Publishing Co., 1998</td></tr>
<tr><td>3</td><td colspan="7">Rojer Pressman, Software Engineering-A Practitioners approach, McGraw Hill, 5th ed., 2001</td></tr>
<tr><td>4</td><td colspan="7">Wilbert O.Galitz, Essential Guide to User Interface Design, John Wiley, 1997</td></tr>
<tr><td>5</td><td colspan="7">Alex Berson, Client server Architecture, Mc Grew Hill International, 1994</td></tr>
<tr><td>6</td><td colspan="7">Dromey R.G., How to solve it by Computers, PHI, 1994</td></tr>
</table>

<table>
<tr><td colspan="8">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2008</td></tr>
<tr><td colspan="2">Department</td><td colspan="2">Information Technology</td><td colspan="2">Programme Code &Name</td><td colspan="3">21: B.Tech.
Information Technology</td></tr>
<tr><td colspan="9">Semester VII</td></tr>
<tr><td colspan="2" rowspan="2">Course Code</td><td colspan="2" rowspan="2">Course Name</td><td colspan="3">Hours / Week</td><td>Credit</td><td colspan="3">Maximum Marks</td></tr>
<tr><td>L</td><td>T</td><td>P</td><td>C</td><td>CA</td><td>ES</td><td>Total</td></tr>
<tr><td colspan="2">08210761E</td><td colspan="2">CLOUD COMPUTING</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To understand the concept of cloud computing. To know the application of cloud computing.
To understanding the technology and tool kits to facilitated the cloud computing.</td></tr>
<tr><td>1</td><td colspan="5">CLOUD BASICS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">The Cloud - Cloud Application Architectures-The Value of Cloud Computing - Cloud Infrastructure Models - An Overview of Amazon Web Services.</td></tr>
<tr><td>2</td><td colspan="5">APPLICATIONS AND DESIGN ISSUES</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Software Licenses - The Shift to a Cloud Cost Model - Service Levels for Cloud Applications - Web Application Design - Machine Image Design - Privacy Design - Database Management</td></tr>
<tr><td>3</td><td colspan="5">SECURITY ISSUES OF CLOUD</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Data Security - Network Security - Host Security - Compromise Response</td></tr>
<tr><td>4</td><td colspan="5">DISASTER RECOVERY</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Disaster Recovery - Disaster Recovery Planning - Disasters in the Cloud - Disaster Management</td></tr>
<tr><td>5</td><td colspan="5">CLOUD INFRASTRUCTURE</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Scaling a Cloud Infrastructure - Capacity Planning - Cloud Scale - Types of Clouds - Comparing Approaches</td></tr>
<tr><td colspan="8">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="9">Text book:</td></tr>
<tr><td>1.</td><td colspan="8">George Reese, “Cloud Application Architectures Building Applications and Infrastructure in the Cloud” ,O’Reilly, 2009</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1.</td><td colspan="8">Dan sanderson, “ Programming Google App Engine Build and Run Scalable Web Apps on Google’s Infrastructure “,O’Reilly, 2009</td></tr>
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K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology		Programme Code &Name			21: B.Tech. Information Technology		
Semester VII								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210762E	C# AND .NET	3	0	0	3	50	50	100
Objective(s)	The student will gain knowledge in the concepts of the .NET framework as a whole and the technologies that constitute the framework. The student will gain programming skills in C# both in basic and advanced levels. By building sample applications, the student will get experience and be ready for large–scale projects.							

1	INTRODUCTION TO C#	Total Hrs	8
Introducing C#, Understanding .NET, Overview of C#, Literals, Variables, Data Types, Operators, Expressions, Branching, Looping, Methods, Arrays, Strings, Structures, Enumerations.			
2	OBJECT ORIENTED ASPECTS OF C#	Total Hrs	9
Classes, Objects, Inheritance, Polymorphism, Interfaces, Operator Overloading, Delegates, Events, Errors and Exceptions.			
3	APPLICATION DEVELOPMENT ON .NET	Total Hrs	8
Building Windows Applications, Accessing Data with ADO.NET.			
4	WEB BASED APPLICATION DEVELOPMENT ON .NET	Total Hrs	8
Programming Web Applications with Web Forms, Programming Web Services.			
5	THE CLR AND THE .NET FRAMEWORK	Total Hrs	12
Assemblies, Versioning, Attributes, Reflection, Viewing MetaData, Type Discovery, Reflecting on a Type, Marshaling, Remoting, Understanding Server Object Types, Specifying a Server with an Interface, Building a Server, Building the Client, Using SingleCall, Threads.			
Total hours to be taught			45

Text book (s) :	
1	E. Balagurusamy, “Programming in C#”, Tata McGraw-Hill, Second Edition,2009(UnitI,II)
2	J. Liberty, “Programming C#”, 4th ed., O’Reilly, 2007. (Unit III, IV, V)
Reference (s) :	
1	Herbert Schildt, “The Complete Reference: C# 2.0” Tata McGraw-Hill, Second Edition,2005
2	Robinson et al, “Professional C#”, 3rd Edition, Wrox Press, 2004.
3	Andrew Troelsen, “Pro C# 2005 and the.NET 2.0 Platform” ,3rd Edition, Apress,2005
4	“Understanding .NET 2/E” ,David Chappell, Pearson Education, Second Edition,2006.

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		L	T	P	C	CA	ES	Total
08210763E	CYBER LAWS AND INTELLECTUAL PROPERTY RIGHTS	3	0	0	3	50	50	100
Objective(s)	To enable learners to understand the cyber laws and intellectual property rights. To Know the IP Trademarks and Agreement							

1	POWER OF ARREST WITHOUT WARRANT UNDER THE IT ACT 2000: A CRITIQUE	Total Hrs	8
Crimes of this millennium-Section 80 of the IT Act 2000-Forgetting the line between cognizable and non cognizable offence. Necessity of Arrest without warrant from anyplace, public or otherwise- Checks and Balance Against Arbitrary Arrests - Arrest but No Punishment.			
2	CYBER CRIME AND CRIMINAL JUSTICE	Total Hrs	9
Concept of cyber crime and IT ACT 2000-Hacking-Teanage Web Vandals- Cyber Fraud and Cyber Cheating-Virus on the Internet-Defamation-Harassment and E-mail Abuse-Cyber Pornography-Nature of Cyber Criminality-Strategies to tackle Cyber Crime and Trends.			
3	INTELLECTUAL PROPERTY RIGHTS	Total Hrs	9
Introduction – Invention and Creativity – Intellectual Property (IP) – Importance – Protection of IPR – Basic types of property (i. Movable Property ii. Immovable Property and iii. Intellectual Property). .			
4	IP TRADE MARKS AND APPLICATIONS	Total Hrs	9
IP – Patents – Copyrights and related rights – Trade Marks and rights arising from Trademark registration – Definitions – Industrial Designs and Integrated circuits – Protection of Geographical Indications at national and International levels – Application Procedures.			
5	WIPO AND GATT	Total Hrs	10
International convention relating to Intellectual Property – Establishment of WIPO – Mission and Activities – History – General Agreement on Trade and Tariff (GATT).			
Total hours to be taught			45
Text book (s) :			
1	Vivek Sood. “Cyber Law Simplified”-Tata McGraw-Hill Publishing, Second Edition 2003.		
2	Subbaram N.R. “Handbook of Indian Patent Law and Practice “, S. Viswanathan (Printers and Publishers) Pvt. Ltd., 1998.		
Reference (s) :			
1	Susan K. Sell , “The Globalization of Intellectual Property Rights” , Kindle Edition - Jun 23, 2003		

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Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210764E	3G WIRELESS NETWORKS	3	0	0	3	50	50	100
Objective(s)	To learn the basics of 3G Wireless data communications technologies. To understand various Spreading codes used in 3G Wireless Communication. To build working knowledge on various telephone networks. To study the working principles of 3G Wireless Network data transmission procedures. To study 3G Wireless Network services,3G upgrades and 4G vision..							
1	3G WIRELESS COMMUNICATION FUNDAMENTALS				Total Hrs	9		
Overview of 3G – Proposals for 3G Standard – 3GPP2 - 3GPP2 - 3G Evolution Paths – CDMA Principles – Radio-Channel Access Schemes – Spread Spectrum – RAKE Receiver – Power Control – Handovers – Multiuser Detection – TDD – Modulation Techniques and Spread Spectrum – Spreading Techniques – Data Modulation.								
2	CHANNEL CODING				Total Hrs	9		
Spreading Codes – Orthogonal Codes – Pseudo- Noise Codes – Synchronization Codes – autocorrelation and Cross-Correlation – Intercell Interference – Channel Coding – Coding Processes. Coding Theory – Block Codes – Convolutional Codes. Turbo Codes – Channel Coding in UTRAN.								
3	TELECOMMUNICATION NETWORKS				Total Hrs	9		
Network – General Discussion. Evolution from GSM. UMTS Network Structure. Core Network. UMTS Radio Access Network. GSM Radio Access Network. Interfaces. Network Protocols. UMTS Network Evolution – Network Planning – Network Planning Terminology. Network Planning Process – Admission Control. Congestion Control – Network Management – Telecommunication Management Architecture.								
4	3G PROCEDURES				Total Hrs	9		
Procedures – RRC Connection Procedures. Radio Bearer Procedures. Data Transmission, Handovers. Random Access Procedure – New Concepts in the UMTS Network – Locations Services. High-Speed Downlink Packet Access. Multimedia Broadcast/Multicast Service, Multimedia Messaging Service - Super-Charger – Prepaging - Gateway Location Register. Optimal Routing. Adaptive Multirate Codec, Support of Localized Service Area. Smart Antennas								
5	3G SERVICES				Total Hrs	9		
3G Services – Service Categories. Teleservices. Bearer Services Supplementary Services. Services Capabilities. Quality of Service – 3G Applications - Application Technologies. Multimedia. Traffic Characteristics of 3G Applications. M-Commerce. Examples of 3G Applications. Terminals – The Future – New Spectrum. Satellites. 3G Upgrades. Downlink Bottleneck. 4G Vision								
Total hours to be taught						45		
Text book :								
1	Juha Korhonen, “Introduction to 3G Mobile Communications”, Second Edition, Artech House, 2003							
Reference (s) :								
1	Daniel Collins, Clint Smith, “3G Wireless Networks”, McGraw – Hill , 2001							
2	Roman Kitka, Richard Levine, Lawrence J.HJarte, “3G Wireless Demystified” McGraw – Hill 2001.							

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		L	T	P	C	CA	ES	Total
08210871E	INFORMATION SYSTEM DESIGN	3	0	0	3	50	50	100
Objective(s)	To know the basics of managing the digital firm. To understand the design, development and maintenance of information systems. To understand basic issues in knowledge management and information systems. To know the ethical and security issues in information systems.							
1	MANAGING THE DIGITAL FIRM				Total Hrs	9		
Why information systems – contemporary approaches to information systems – new role of information systems- major types of systems in organizations – systems from a functional perspective – enterprise applications – organizations and information systems – managers decision making and information systems – information systems and business strategy.								
2	DESIGNING INFORMATION SYSTEMS				Total Hrs	9		
Systems as planned organizational change – business process re-engineering and process improvement – overview of systems development – alternate system – Building approaches – Understanding the business value of Information Systems - The importance of change management in information system success and failure – Managing Implementation								
3	DEVELOPMENT AND MAINTENANCE OF INFORMATION SYSTEMS				Total Hrs	9		
Systems analysis and design – System development life cycle – Limitation – End User Development – Managing End Users – off-the shelf software packages – Outsourcing – Comparison of different methodologies.								
4	KNOWLEDGE MANAGEMENT, ETHICS AND SECURITY				Total Hrs	9		
Knowledge Management in the organization – Information and Knowledge base systems – Decision -support systems – Understanding ethical and Social issues packed to systems – Ethics in an Information society – The moral dimensions of Information Systems – System vulnerability and abuse – Creating a control environment – Ensuring System Quality.								
5	INFORMATION ARCHITECTURE				Total Hrs	9		
Defining Information Architecture – why Information Architecture matters – Practicing Information Architecture in the Real world – Information Ecologies – User needs and Behavior – The anatomy of Information Architecture.								
Total hours to be taught						45		
Text book (s) :								
1	Lauaon Kenneth & Landon Jane, "Management Information Systems: Managing the Digital firm", Eighth edition, PHI, 2004.							
2	Uma G. Gupta, "Management Information Systems – A Management Perspective", Galgotia publications Pvt., Ltd., 1998.							
3	Louis Rosenfel and Peter Morville, "Information Architecture for the World wide Web", O'Reilly Associates, 2002.							
Reference (s) :								
1	Steven Alter, "Information Systems – A Management Perspective", Pearson Education, 2001.							
2	Uma Gupta, "Information Systems – Success in 21st Century", Prentice Hall of India, 2000.							
3	Robert G. Murdick, Joel E. Ross and James R. Claggett, "Information Systems for Modern Management", PHI, 1994.							

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<tr><td colspan="2">08210872E</td><td>USER INTERFACE DESIGN</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To study the concept of menus, windows, interfaces. To study about business functions, study the testing methods. To study the characteristics and components of windows. To study the various controls for the windows. To study about various problems in windows design with color, text, graphics.</td></tr>
<tr><td>1</td><td colspan="5">INTRODUCTION</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Introduction-Importance-Human-Computer interface-characteristics of graphics interface-Direct manipulation graphical system - web user interface-popularity-characteristic & principles</td></tr>
<tr><td>2</td><td colspan="5">DESIGN PROCESS</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">User interface design process- obstacles-usability-human characteristics in design - Human interaction speed-business functions-requirement analysis-Direct-Indirect methods-basic business functions-Design standards-system timings - Human consideration in screen design</td></tr>
<tr><td>3</td><td colspan="5">SYSTEM MENUS AND NAVIGATION SCHEMES</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">structures of menus - functions of menus-contents of menu-formatting -phrasing the menu - selecting menu choice-navigating menus-graphical menus</td></tr>
<tr><td>4</td><td colspan="5">CONTROLS</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Windows: Characteristics-components-presentation styles-types-managements-organizations-operations-web systems-device-based controls: characteristics-Screen -based controls: operate control - text boxes-selection control-combination control-custom control-presentation control.</td></tr>
<tr><td>5</td><td colspan="5">WINDOWS LAYOUT AND TEST</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Text for web pages - effective feedback-guidance & assistance-Internationalization-accesssibility-Icons-Image-Multimedia -coloring Windows layout-test :prototypes - kinds of tests - retest</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">Wilbent. O. Galitz ,“The Essential Guide to User Interface Design”, Second Edition, John Wiley& Sons, Reprint 2007</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Ben Sheiderman, “Design the User Interface”, Pearson Education, 1998.</td></tr>
<tr><td>2</td><td colspan="8">Alan Cooper, “The Essential of User Interface Design”, Wiley – Dream Tech Ltd., 2002.</td></tr>
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Semester VIII								
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		L	T	P	C	CA	ES	Total
08210873E	SOFTWARE TESTING	3	0	0	3	50	50	100
Objective(s)	To explain the basics of software testing. To highlight the strategies for software testing. To stress the need and conduct of testing levels. To identify the issues in testing management. To bring out the ways and means of controlling and monitoring testing activity							
1	INTRODUCTION				Total Hrs	8		
Testing as an Engineering Activity, Role of Process in Software Quality, Testing as a Process, Basic Definitions, Software Testing Principles, The Tester's Role in a Software Development Organization, Origins of Defects, Defect Classes, The Defect Repository and Test Design, Defect Examples, Developer/Tester Support for Developing a Defect Repository								
2	TEST CASE DESIGN				Total Hrs	10		
Introduction to Testing Design Strategies, The Smarter Tester, Test Case Design Strategies, Using Black Box Approach to Test Case Design, Random Testing, Boundary Value Analysis, Other Black-box Test Design Approaches, Black-box testing and COTS, Using White-Box Approach to Test design, Test Adequacy Criteria, , Paths:Their Role in White-box Based Test Design, Additional White Box Test Design Approaches								
3	LEVELS OF TESTING				Total Hrs	9		
The Need for Levels of Testing, Unit Test, Unit Test Planning, Designing the Unit Tests. The Class as a Testable Unit, The Test Harness, Running the Unit tests and Recording results, Integration tests, Designing Integration Tests, Integration Test Planning, System Test – The Different Types, Regression Testing, Alpha, Beta and Acceptance Tests								
4	TEST MANAGEMENT				Total Hrs	9		
Introductory Concepts, Testing and Debugging Goals and Policies, Test Planning, Test Plan Components, Test Plan Attachments, Locating Test Items, The role of three groups in Test Planning and Policy Development, Introducing the test specialist, Skills needed by a test specialist								
5	CONTROLLING AND MONITORING				Total Hrs	9		
Defining Terms, Measurements and Milestones for Controlling and Monitoring, Status Meetings, Reports and Control Issues, Criteria for Test Completion, SCM, Types of reviews, Developing a review program, Components of Review Plans.								
Total hours to be taught						45		
Text book :								
1	Ilene Burnstein, "Practical Software Testing", Springer International Edition, Chennai, 2003							
Reference (s) :								
1	Edward Kit, "Software Testing in the Real World – Improving the Process", Pearson Education, New Delhi, 1995							
2	Elfriede Dustin, "Effective Software Testing", Pearson Education, New Delhi, 2003							
3	Renu Rajani and Pradeep Oak, "Software Testing – Effective Methods, Tools and Techniques", Tata McGraw-Hill, New Delhi, 2003							

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<tr><td colspan="2">08210874E</td><td colspan="2">DIGITAL IMAGE PROCESSING</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To study the image fundamentals and mathematical transforms necessary for image processing. To understand the various mathematical concepts applied to image enhancement. To learn the procedures for restoration of image. To deal with techniques performed for image compression. To become skilled at the image segmentation and representation techniques.</td></tr>
<tr><td>1</td><td colspan="5">DIGITAL IMAGE FUNDAMENTALS AND TRANSFORMS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Elements of visual perception – Image sampling and quantization – Basic relationship between pixels – Basic geometric transformations-Introduction to Fourier Transform and DFT – Separable Image Transforms -Walsh – Hadamard – Discrete Cosine Transform, Haar, Slant – Karhunen – Loeve transforms.</td></tr>
<tr><td>2</td><td colspan="5">IMAGE ENHANCEMENT TECHNIQUES</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Spatial Domain methods: Basic grey level transformation – Histogram equalization – Image subtraction – Image averaging –Spatial filtering: Smoothing, sharpening filters – Laplacian filters – Frequency domain filters: Smoothing – Sharpening filters – Homomorphic filtering.</td></tr>
<tr><td>3</td><td colspan="5">IMAGE RESTORATION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Model of Image Degradation/restoration process – Noise models – Inverse filtering – Least mean square filtering – Constrained least mean square filtering –Geometric mean filter – Blind image restoration.</td></tr>
<tr><td>4</td><td colspan="5">IMAGE COMPRESSION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Fundamentals– Lossless compression: Variable length coding – LZW coding – Bit plane coding–Predictive coding–.Lossy Compression: Transform coding – Wavelet coding – Image compression standards: Binary Image–Compression standards– Continuous Tone Still Image Compression Standards–Video Compression standards.</td></tr>
<tr><td>5</td><td colspan="5">IMAGE SEGMENTATION AND REPRESENTATION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Edge detection – Thresholding - Region Based segmentation – Boundary representation: chain codes- Polygonal approximation – Boundary segments – Boundary descriptors: Simple descriptors –Fourier descriptors – Regional descriptors –Simple descriptors- Texture.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="8">Text book :</td></tr>
<tr><td>1</td><td colspan="7">Rafael C Gonzalez and Richard E Woods, “Digital Image Processing”, third edition, Pearson Education, 2007.</td></tr>
<tr><td colspan="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">William K Pratt,” Digital Image Processing”, John Wiley & Sons, New York, 2004.</td></tr>
<tr><td>2</td><td colspan="7">Anil K.Jain,”Fundamentals of Digital Image Processing”, Prentice Hall, New Delhi, 1995.</td></tr>
<tr><td>3</td><td colspan="7">Chanda Dutta Magundar,” Digital Image Processing and Applications”, Prentice Hall of India, 2000.</td></tr>
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<tr><td colspan="2">08210881E</td><td colspan="2">DATA WAREHOUSING AND MINING</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To serve as an introductory course to under graduate students with an emphasis on the design aspects of Data Mining and Data Warehousing. To introduce the concept of data mining with in detail coverage of basic tasks, metrics, issues, and implication. Core topics like classification, clustering and association rules are exhaustively dealt with. To introduce the concept of data warehousing with special emphasis on architecture and design.</td></tr>
<tr><td>1</td><td colspan="5">INTRODUCTION AND DATA WAREHOUSING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Introduction, Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Implementation, Data Warehousing to Data Mining.</td></tr>
<tr><td>2</td><td colspan="5">DATA PREPROCESSING, CONCEPT DESCRIPTION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Why Preprocessing, Cleaning, Integration, Transformation, Reduction, Discretization, Concept Hierarchy Generation, Concept Description, Data Generalization, Characterizations, Class Comparisons, Descriptive Statistical Measures.</td></tr>
<tr><td>3</td><td colspan="5">ASSOCIATION RULES</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Association Rule Mining, Single-Dimensional Boolean Association Rules from Transactional Databases, Multi-Level Association Rules from Transaction Databases.</td></tr>
<tr><td>4</td><td colspan="5">CLASSIFICATION AND CLUSTERING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Classification and Prediction, Issues, Decision Tree Induction, Bayesian Classification, Association Rule Based, Other Classification Methods, Prediction, Classifier Accuracy, Cluster Analysis, Types of data, Categorisation of methods, Hierarchical Methods-BIRCH, Partitioning methods.</td></tr>
<tr><td>5</td><td colspan="5">RECENT TRENDS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Spatial Databases, Multimedia Databases, Text Databases, World Wide Web, Applications and Trends in Data Mining.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">J. Han, M. Kamber, “Data Mining: Concepts and Techniques”, Harcourt India / Morgan Kauffman, 2001.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Margaret H.Dunham, “Data Mining: Introductory and Advanced Topics”, Pearson Education 2004.</td></tr>
<tr><td>2</td><td colspan="8">Sam Anahory, Dennis Murry, “Data Warehousing in the real world”, Pearson Education 2003.</td></tr>
<tr><td>3</td><td colspan="8">David Hand, Heikki Manila, Padhraic Symth, “Principles of Data Mining”, PHI 2004.</td></tr>
<tr><td>4</td><td colspan="8">W.H.Inmon, “Building the Data Warehouse”, 3rd Edition, Wiley, 2003.</td></tr>
<tr><td>5</td><td colspan="8">Alex Bezon, Stephen J.Smith, “Data Warehousing, Data Mining & OLAP”, MeGraw-Hill Edition, 2001.</td></tr>
<tr><td>6</td><td colspan="8">Paulraj Ponniah, “Data Warehousing Fundamentals”, Wiley-Interscience Publication, 2003.</td></tr>
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K.S.Rangasamy College of Technology - Autonomous Regulation								R 2008
Department	Information Technology	Programme Code &Name			21: B.Tech. Information Technology			
Semester VIII								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
08210882E	E-COMMERCE	3	0	0	3	50	50	100
Objective(s)	To enable learners to understand the Electronic commerce in Business and in payments, Security.							

1	INTRODUCTION TO E-COMMERCE	Total Hrs	8
Electronic commerce and physical commerce - Economic forces – advantages – myths - business models.			
2	TECHNOLOGY INFRASTRUCTURE	Total Hrs	10
Internet and World Wide Web, internet protocols - FTP, intranet and extranet - cryptography, information publishing technology- basics of web server hardware and software.			
3	BUSINESS APPLICATIONS	Total Hrs	10
Consumer oriented ecommerce – etailing and models - Marketing on web – advertising, e-mail marketing, e-CRM; Business oriented ecommerce – E-Government, EDI on the internet, SCM; Web Auctions, Virtual communities and Web portals			
4	ECOMMERCE PAYMENTS AND SECURITY	Total Hrs	9
E payments - Characteristics of payment of systems, protocols, E-cash, E- check and Micro payment systems.			
5	LEGAL AND PRIVACY ISSUES IN E- COMMERCE	Total Hrs	8
Legal, Ethics and privacy issues – Protection needs and methodology – consumer protection, cyber laws, contracts and warranties. Taxation and encryption policies.			
Total hours to be taught			45

Text book :

1	Hentry Chan & el , E-Commerce – fundamentals and Applications, Wiley India Pvt Ltd, 2007.
2	Gary P. Schneider, Electronic commerce, Thomson course technology, Fourth annual edition, 2007.

Reference (s) :

1	Bharat Bhasker, Electronic Commerce – Frame work technologies and Applications, 3rd Edition. Tata McGrawHill Publications, 2008
2	Kamlesh K.Bajaj and Debjani Nag, Ecommerce- the cutting edge of Business, Tata McGraw Hill Publications, 2008
3	Efraim Turban et al, Electronic Commerce –A managerial perspective, Pearson Education Asia, 2006

<table>
<tr><td colspan="8">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2008</td></tr>
<tr><td colspan="2">Department</td><td colspan="2">Information Technology</td><td colspan="2">Programme Code &Name</td><td colspan="3">21: B.Tech.
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<tr><td colspan="2" rowspan="2">Course Code</td><td colspan="2" rowspan="2">Course Name</td><td colspan="3">Hours / Week</td><td>Credit</td><td colspan="3">Maximum Marks</td></tr>
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<tr><td colspan="2">08210883E</td><td colspan="2">OPEN SOURCE ARCHITECTURE</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">The main objective is to allow students to address issues and adapt Open Source Technologies and Practices.</td></tr>
<tr><td>1</td><td colspan="4">OVERVIEW OF OPEN SOURCE SOFTWARE</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Overview of Open Source Software: The Open Source Definition, Examples of OSD-compliant licenses, Examples of Open Source Software Products, The Open Source Software Development Process, A history of Open Source Software: The Berkeley Software Distribution, TeX, The Free Software Foundation, Linux, Apache,Mozilla, Open Source Software Open Source: The Good, the Bad and the Ugly.</td></tr>
<tr><td>2</td><td colspan="4">OPEN SOURCE SOFTWARE QUALIFICATION AND TRANSFORMATION</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Qualification: Defining Open Source Software, Categorizing Defining Open Source Software, Specific Characteristics of Open Source Software, Transformation: The OSS development process, Taboos and norms in OSS development, The OSS development life cycle, Deriving a framework for analyzing OSS: Zachman's framework for IS architecture, CATWOE and Soft systems method, Deriving the analytical framework for OSS.</td></tr>
<tr><td>3</td><td colspan="4">OSS ENVIRONMENT</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Environment: The "where?" of OSS, the "when?" of OSS, World View: A framework for classifying OSS motivations, Technological micro-level and macro-level(individual) motivation, Economic micro-level and macro-level(individual) motivation, Socio-political micro-level and macro-level(individual) motivation.</td></tr>
<tr><td>4</td><td colspan="4">APPLICATION ARCHITECTURE AND HOW OPEN SOURCE SOFTWARE IS DEVELOPED</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Application Architecture: Types of Systems, Tiered Design, Managing Performance and scalability, Interoperability, Development Platform Choices, Open Source Software Development: Methodology, Languages Used to Develop Open Source Products, Cross-Platform Code, Managing System Implementation: Implementation Roles, Open Source Impact on Team Issues, Implementation Process, Implementation Principles, Key Documents, Migration, Interacting with the Open Source Community.</td></tr>
<tr><td>5</td><td colspan="4">OPEN SOURCE SERVER APPLICATIONS</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Open Source Server Applications: Infrastructure Services, Web Servers, Database Servers, Mail Servers, Systems Management, Open Source Desktop Applications: Introduction, Graphical desktops, Web Browsers, The Office Suite, Mail and Calendar Clients, Personal Software, Cost of OSS: Total cost of Ownership, Types of Costs Licensing: Types of Licenses, Licenses in Use, Mixing Open and Closed Code, Dual Licensing.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">Understanding Open Source Software Development by Joseph Feller, Brian Fitzgerald, Eric S. Raymond, Addison-Wesley Professional; 1st edition (December 31, 2001)</td></tr>
<tr><td>2</td><td colspan="8">Open Source Software: Implementation and Management, by Paul Kavanagh, Digital Press (July 26, 2004),2004 [Chapters 3, 7, 8, 9, 10, 11,12,13]</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">The Success of Open Source by Steven Weber , Harvard University Press (April 30, 2004)</td></tr>
<tr><td>2</td><td colspan="8">Succeeding with Open Source by Bernard Golden, Addison-Wesley Professional (August 10, 2004)</td></tr>
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<tr><td colspan="2">08210884E</td><td colspan="2">SOFT COMPUTING</td><td>3</td><td>0</td><td>0</td><td>3</td><td>50</td><td>50</td><td>100</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To learn the basics concepts of fuzzy systems. To understand various concepts of neural networks. To have knowledge on systems involving neurofuzzy networks. To study the basics of genetic algorithm. To study the applications of the soft computing techniques.</td></tr>
<tr><td>1</td><td colspan="5">FUZZY SYSTEMS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Fuzzy set theory-fuzzy rules and fuzzy reasoning-fuzzy inference systems-decomposition-fuzzy automata and languages-fuzzy control methods.</td></tr>
<tr><td>2</td><td colspan="5">NEURAL NETWORKS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Basic concepts-knowledge based processing-single layer perceptron-multilayer perceptron-supervised and unsupervised learning-feed forward and back propagation and counter propagation networks-kohenen’s self organizing networks-Hopfield networks.</td></tr>
<tr><td>3</td><td colspan="5">NEURO FUZZY MODELING:</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Adaptive neuro fuzzy inference systems-classification and regression trees- data clustering-rule base structure identification-neuro fuzzy controls.</td></tr>
<tr><td>4</td><td colspan="5">GENETIC ALGORITHMS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Basics of GA- choice of encoding-selection probability-mutation and crossover-fitness evaluation– Improving convergence rate-a simplex GA Hybrid approach</td></tr>
<tr><td>5</td><td colspan="5">APPLICATIONS OF SOFT COMPUTING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Fuzzy techniques for inverted pendulum case-MIMO fuzzy systems-MCDM for weather forecasting and financial marketing-Neural networks for pattern recognition-TS problems-Routers-GA application to metabolic modeling.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">Jang.J.S.R.Sun.C.T.and Mizutami.E, “Neuro fuzzy and Soft computing, “Prentice Hall, New Jersey-2000.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Timithy.J.Ross, “Fuzzy logic Engineering Applications,” McGraw Hill, NewYork-1997.</td></tr>
<tr><td>2</td><td colspan="8">S.N.Sivanandam, S.N.Deepa “Principles of Soft Computing” Wiley India Pvt Ltd.</td></tr>
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