Curriculum & Syllabus

of

B.Tech. Information Technology

(For the batch admitted in 2007-08)

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 2007
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 2007							
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							
07210101G	Technical English	3	0	0	3	50	50	100
07210102G	Engineering Mathematics I	3	1	0	4	50	50	100
07210103G	Applied Physics	3	1	0	4	50	50	100
07210104G	Applied Chemistry	3	1	0	4	50	50	100
07210105G	Fundamentals of Programming	3	1	0	4	50	50	100
07210106S	Basics of Civil and Mechanical Engg. (Common to EEE, ECE, CSE & IT)	4	0	0	4	50	50	100
	PRACTICAL							
07210107P	Applied Physics Laboratory	0	0	3	2	50	50	100
07210108P	Applied Chemistry Laboratory	0	0	3	2	50	50	100
07210109P	Programming Laboratory	0	0	3	2	50	50	100
07210110P	Engineering Practices Laboratory	0	0	3	2	50	50	100
Total		19	04	12	31	1000		
Semester II								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
	THEORY							
07210201G	Communication Skills	3	0	0	3	50	50	100
07210202G	Engineering Mathematics II	3	1	0	4	50	50	100
07210203G	Materials Science	4	0	0	4	50	50	100
07210204G	Environmental Science	3	1	0	4	50	50	100
07210205S	Basics of Electrical Engineering (Common to CSE & IT)	3	1	0	4	50	50	100
07210206S	Basics of Electronics Engineering (Common to CSE & IT)	3	1	0	4	50	50	100
	PRACTICAL							
07210207P	Engineering Graphics Laboratory	1	0	3	3	50	50	100
07210208P	Electrical Engineering Laboratory	0	0	3	2	50	50	100
07210209P	Electronics Engineering Laboratory	0	0	3	2	50	50	100
07210210P	Comprehension I	0	0	3	0	100	00	100
Total		20	04	12	30	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							
07210301G	Engineering Mathematics III	3	1	0	4	50	50	100
07210302C	Signals and Systems	3	1	0	4	50	50	100
07210303C	Computer Architecture	3	0	0	3	50	50	100
07210304C	Data Structures	3	0	0	3	50	50	100
07210305C	Principles of Communication	3	1	0	4	50	50	100
07210306C	Advanced C & C++	3	1	0	4	50	50	100
	PRACTICAL							
07210307P	Digital and Hardware Laboratory	0	0	3	2	50	50	100
07210308P	Data Structures Laboratory	0	0	3	2	50	50	100
07210309P	Advanced C & C++ Laboratory	0	0	3	2	50	50	100
07210310P	Comprehension II	0	0	3	0	100	00	100
07210311P	Career Competency Development I	0	0	2	0	100	00	100
Total		18	04	14	28	1100		
Semester IV								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
	THEORY							
07210401C	Probability and Statistics	3	1	0	4	50	50	100
07210402C	Software Engineering	3	0	0	3	50	50	100
07210403C	Information Coding Techniques	3	0	0	3	50	50	100
07210404C	Java Programming	3	1	0	4	50	50	100
07210405C	Digital Signal Processing	3	1	0	4	50	50	100
07210406C	Microprocessors and Microcontrollers	3	1	0	4	50	50	100
	PRACTICAL							
07210407P	Java Programming Laboratory	0	0	3	2	50	50	100
07210408P	DSP and Communications Systems Laboratory	0	0	3	2	50	50	100
07210409P	Microprocessors and Microcontrollers Laboratory	0	0	3	2	50	50	100
07210410P	Comprehension III	0	0	3	0	100	00	100
07210411P	Career Competency Development II	0	0	2	0	100	00	100
Total		18	04	14	28	1100		

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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							
07210501S	Principles of Management	3	0	0	3	50	50	100
07210502C	Object Oriented Analysis and Design	3	0	0	3	50	50	100
07210503C	Operating Systems	3	1	0	4	50	50	100
07210504C	Computer Networks	3	1	0	4	50	50	100
07210505S	Database Management Systems (Common to CSE & IT)	3	1	0	4	50	50	100
07210506C	Telecommunication Systems	3	0	0	3	50	50	100
	PRACTICAL							
07210507P	Case Tools Laboratory	0	0	3	2	50	50	100
07210508P	Operating System and Open Source Laboratory	0	0	3	2	50	50	100
07210509P	Database Management Systems Laboratory	0	0	3	2	50	50	100
07210510P	Comprehension IV	0	0	3	0	100	00	100
07210511P	Career Competency Development III	0	0	2	0	100	00	100
Total		18	03	14	27	1100		
Semester VI								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
	THEORY							
07210601S	Professional Ethics	3	0	0	3	50	50	100
07210602S	Numerical Methods (Common to CSE & IT)	3	1	0	4	50	50	100
07210603C	TCP/IP and Socket Programming	3	1	0	4	50	50	100
07210604C	Visual Programming	3	1	0	4	50	50	100
07210605C	Web Technology	3	1	0	4	50	50	100
072106**E	Elective I	3	0	0	3	50	50	100
	PRACTICAL							
07210607P	Visual Programming Laboratory	0	0	3	2	50	50	100
07210608P	Network Laboratory	0	0	3	2	50	50	100
07210609P	Design Project	0	0	3	2	100	00	100
07210610P	Comprehension V	0	0	3	0	100	00	100
07210611P	Career Competency Development IV	0	0	2	0	100	00	100
Total		18	04	14	28	1100		

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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							
07210701G	Total Quality Management	3	0	0	3	50	50	100
07210702C	Component Based Technology	3	1	0	4	50	50	100
07210703C	Mobile Computing	3	1	0	4	50	50	100
07210704C	Graphics and Multimedia	3	1	0	4	50	50	100
072107**E	Elective II	3	0	0	3	50	50	100
072107**E	Elective III	3	0	0	3	50	50	100
	PRACTICAL							
07210707P	Software Components Laboratory	0	0	3	2	50	50	100
07210708P	Graphics and Multimedia Laboratory	0	0	3	2	50	50	100
07210709P	Project Work - Phase I	0	0	4	2	100	00	100
07210710P	Career Competency Development V	0	0	2	0	100	00	100
Total		18	03	12	27	1000		
Semester VIII								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
	THEORY							
072108**E	Elective IV	3	0	0	3	50	50	100
072108**E	Elective V	3	0	0	3	50	50	100
	PRACTICAL							
07210803P	Project Work - Phase II	0	0	40	20	50	50	100
Total		06	00	40	26	300		

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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								
07210641E	Compiler Design	3	0	0	3	50	50	100
07210642E	Discrete Mathematics	3	0	0	3	50	50	100
07210643E	Embedded Systems	3	0	0	3	50	50	100
07210644E	Software Quality Management	3	0	0	3	50	50	100
07210645E	Cryptography and Network Security	3	0	0	3	50	50	100
07210646E	Advanced Java Programming	3	0	0	3	50	50	100
Elective II								
07210751E	Client / Server Computing	3	0	0	3	50	50	100
07210752E	Distributed Computing	3	0	0	3	50	50	100
07210753E	Grid Computing	3	0	0	3	50	50	100
07210754E	High Performance Networks	3	0	0	3	50	50	100
Elective III								
07210761E	Cloud Computing	3	0	0	3	50	50	100
07210762E	C# and .Net	3	0	0	3	50	50	100
07210763E	Cyber Laws and Intellectual Property Rights	3	0	0	3	50	50	100
07210764E	3G Wireless Networks	3	0	0	3	50	50	100
Elective IV								
07210871E	Information System Design	3	0	0	3	50	50	100
07210872E	User Interface Design	3	0	0	3	50	50	100
07210873E	Software Testing	3	0	0	3	50	50	100
07210874E	Digital Image Processing	3	0	0	3	50	50	100
Elective V								
07210881E	Data Warehousing and Mining	3	0	0	3	50	50	100
07210882E	E-Commerce	3	0	0	3	50	50	100
07210883E	Open Source Architecture	3	0	0	3	50	50	100
07210884E	Soft Computing	3	0	0	3	50	50	100

<table>
<tr><td colspan="7">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2007</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>07210101G</td><td>TECHNICAL ENGLISH</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>1</td><td colspan="4">GRAMMAR AND VOCABULARY</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">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.</td></tr>
<tr><td>2</td><td colspan="4">LISTENING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">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</td></tr>
<tr><td>3</td><td colspan="4">SPEAKING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Verbal and non verbal communication – speech sounds – syllables – word stress (structures and content words) – sentence 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.</td></tr>
<tr><td>4</td><td colspan="4">READING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">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.</td></tr>
<tr><td>5</td><td colspan="4">WRITING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Introduction 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).</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="8">Reference(s):</td></tr>
<tr><td>1</td><td colspan="7">Rizvi M Ashraf, “Effective Technical Communication”, 1st Edition, Tata McGrawHill Publishing Company Ltd., New Delhi, 2005.</td></tr>
<tr><td>2</td><td colspan="7">Dr.M.Balasubramanian and Dr.G.Anbalagan, “Performance in English” Anuradha Publications, Kumbakonan, 2007.</td></tr>
<tr><td>3</td><td colspan="7">Sharon J. Gerson, Steven M. Gerson, “Techinical Writing – Process & Product”. 3rd Edition, Pearson Education (Singapore) (p) Ltd., New Delhi, 2004.</td></tr>
<tr><td>4</td><td colspan="7">Mitra K. Barun, “Effective Techinical Communication – A Guide for Scientists and Engineers”, Oxford University Press, New Delhi, 2006.</td></tr>
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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		
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07210102G	ENGINEERING MATHEMATICS I	3	1	0	4	50	50	100

1	MATRICES	Total Hrs	15

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	15

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	15

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	15

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	15

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	75

Reference(s):

1	Kandasamy. P, Thilagavathy. K and Gunavathy. K, "Engineering Mathematics" –S.Chand and Co. – New Delhi 2007.
2	Veerarajan. T., "Engineering Mathematics (for first year), Fourth Edition Tata McGraw- Hill Publishing Company Limited, New Delhi, 2005.
3	Grewal. B.S., "Higher Engineering Mathematics", Thirty Eighth Edition, Khanna Publishers, Delhi, 2004.
4	Kreyszig. E., "Advanced Engineering Mathematics," Eighth Edition, John Wiley and Sons (Asia) Limited, Singapore 2001.
5	Venkataraman.M.K, "Engineering Mathematics, Volume I & II Revised Enlarged Fourth Edition", The National Pub. Co., Chennai, 2004.

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<tr><td colspan="8">Semester I</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2" colspan="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>07210103G</td><td colspan="2">APPLIED PHYSICS</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="7">To study the design of acoustically good buildings, Structural identification of engineering materials, Non destructive Techniques, Application of Quantum Physics, Application of Lasers in Engineering and Technology.</td></tr>
<tr><td>1</td><td colspan="4">LASERS</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="8">Introduction. Principle 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, cutting, holography.</td></tr>
<tr><td>2</td><td colspan="4">FIBER OPTICS & APPLICATIONS</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="8">Principles. Modes of propagation. - Crucible-crucible technique. Classification based on materials, refractive index profile. Splicing. Losses in optical fiber. Light sources for fiber optics. Detectors. Fiber optical communication links. Fiber optic sensors - temperature, displacement, voltage and magnetic field measurement.</td></tr>
<tr><td>3</td><td colspan="4">QUANTUM PHYSICS & APPLICATIONS</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="8">Introduction to Quantum theory. Dual nature of matter and radiation - de Broglie wave length. Uncertainty principle. Schrödinger's equation. Particle in a box. Optical microscope - limitations of optical microscopy. Electron microscope - Scanning electron microscope, Transmission electron microscope and STEM.</td></tr>
<tr><td>4</td><td colspan="4">ULTRASONICS</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="8">Introduction. Production – magnetostriction effect, magnetostriction generator, inverse piezoelectric effect, piezoelectric generator. Detection of ultrasonic. Properties. Cavitation. Industrial applications – drilling, welding, soldering and cleaning. Non Destructive Testing – pulse echo system through transmission, resonance system. Medical applications – cardiology, ultrasonic imaging.</td></tr>
<tr><td>5</td><td colspan="4">VACUUM SCIENCE</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="8">Introduction. Importance of vacuum in industries. Schematic diagram of a vacuum system. Pumping speed and throughput. Types of pumps - Working principle, construction, pressure range, limitations and pumping characteristics of rotary pump, diffusion pump, turbo molecular pump - measurement of vacuum using gauges.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td>60</td></tr>
<tr><td colspan="8">Reference(s):</td></tr>
<tr><td>1</td><td colspan="7">Avadhanalu M N and Kshirsagar P G, "A Textbook of Engineering Physics", S. Chand & Company Ltd, New Delhi, 2005.</td></tr>
<tr><td>2</td><td colspan="7">Jayakumar S , "Engineering Physics", R K Publishers, Coimbatore, 2003.</td></tr>
<tr><td>3</td><td colspan="7">Arumugam M, "Engineering Physics", Anuradha Publications, Kumbakonam, 2006.</td></tr>
<tr><td>4</td><td colspan="7">Ganesan.S, Iyan Durai N, "Applied Physics" KKS Publishers, Chennai, 2007.</td></tr>
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Semester I								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
07210104G	APPLIED CHEMISTRY	3	1	0	4	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	Total Hrs	12
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 – electrodialysis and reverse osmosis.			
2	ELECTRO CHEMISTRY	Total Hrs	12
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 & CORROSION CONTROL	Total Hrs	12
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	12
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 petrols – Synthetic petrol – Fisher- Tropsch and Bergius method – Octane number – improving octane number by additives – Diesel – Cetane number – Water gas, producer gas, LPG.			
5	HIGH POLYMERS	Total Hrs	12
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			60

Reference(s):

1	Jain P.C. & Monica Jain, “Engineering Chemistry”, Dhanpat Rai Publishing Co. New Delhi, 14th Edition, 2002.
2	Clair N Sawyer and Perry L Mc Carty, ”Chemistry for Environmental Engineering”, TMH Book Company, New Delhi, 14th Edition, 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”, Khanna Publishers, New Delhi, 6th Edition, 2001.

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<tr><td colspan="9">Semester I</td></tr>
<tr><td colspan="2" rowspan="2">Course Code</td><td 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">07210105G</td><td>FUNDAMENTALS OF 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>1</td><td colspan="4">COMPUTER BASICS</td><td colspan="2">Total Hrs</td><td colspan="2">8</td></tr>
<tr><td colspan="9">Evolution of computers- Generations of computers- Applications of computers - Computer Memory and Storage- Input Output Media – Algorithm - Flowchart- Pseudocode – Program control structures - Programming languages - Computer software - Definition - Categories of Software.</td></tr>
<tr><td>2</td><td colspan="4">‘C’ FUNDAMENTALS</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">Introduction to C- Constants- Variables- Data types- Operators and Expressions- Managing Input and Output operations- Decision Making and Branching- Looping.</td></tr>
<tr><td>3</td><td colspan="4">ARRAYS AND FUNCTIONS</td><td colspan="2">Total Hrs</td><td colspan="2">10</td></tr>
<tr><td colspan="9">Arrays- Character Arrays and Strings- User defined functions- Storage Classes.</td></tr>
<tr><td>4</td><td colspan="4">STRUCTURES AND FILES</td><td colspan="2">Total Hrs</td><td colspan="2">10</td></tr>
<tr><td colspan="9">Structures- Definition- Initialization- Array of Structures- Structures within structures- Structures and Functions- Unions- File Management.</td></tr>
<tr><td>5</td><td colspan="4">POINTERS</td><td colspan="2">Total Hrs</td><td colspan="2">8</td></tr>
<tr><td colspan="9">Pointer Basics – Pointer Arithmetic – Pointers and arrays pointers and character string
Pointers and functions – pointers and structures.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Reference(s):</td></tr>
<tr><td>1</td><td colspan="8">ITL Education Solutions Limited, A N Kamthane “Computer Programming” Pearson Education (India), 2007.</td></tr>
<tr><td>2</td><td colspan="8">E.Balagurusamy, “Programming in ANSI C”, TMH, 2004. (Unit III, IV and V).</td></tr>
<tr><td>3</td><td colspan="8">Rajaraman V, “Fundamentals of Computers”, Fourth Edition, PHI 2006.</td></tr>
<tr><td>4</td><td colspan="8">Byron Gottfried, “Programming with C”, II Edition, TMH, 2002.</td></tr>
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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="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">07210106S</td><td colspan="2">BASICS OF CIVIL AND MECHANICAL ENGINEERING</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>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>
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K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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
07210107P	APPLIED PHYSICS LABORATORY	0	0	3	2	50	50	100

LIST OF EXPERIMENTS

1. Particle size determination using Diode Laser.
2. Determination of Laser parameters – Wavelength, Refractive Index and Angle of Divergence.
3. Determination of acceptance angle in an optical fiber.
4. Determination of Thickness of fiber-Air wedge method.
5. Determination of velocity of sound and compressibility of liquid-Ultrasonic Interferometer.
6. Determination of Wavelength of Mercury Spectrum–Spectrometer Grating.
7. Determination of Specific Resistance of given coil of wire - Carey Foster's Bridge.
8. Determination of Thermal conductivity of a Bad conductor-Lee's Disc Method.
9. Determination of Hysteresis losses in a Ferromagnetic material.
10. Determination of Young's Modulus of the material in the form of Bar-Cantiliver method.
11. Determination of Band Gap of Semiconductor material.
12. Determination of Viscosity of liquid-Poiseuille's method.

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		L	T	P	C	CA	ES	Total
07210108P	APPLIED CHEMISTRY LABORATORY	0	0	3	2	50	50	100

LIST OF EXPERIMENTS

1. Estimation of hardness of Water by EDTA.
2. Estimation of alkalinity of Water sample.
3. Estimation of Chloride Content in Water sample.
4. pH titration.
5. Potentiometric.
6. Conductometric titration.
7. Determination of EMF of an unknown cell.
8. Determination of degree of dissociation of weak electrolyte.
9. Estimation of Ferric iron by spectrophotometry.
10. Determination of Total solids in boiler feed water.
11. Determination of water of crystallization of a crystalline salt (Copper Sulphate)
12. Determination of sodium and potassium in a water sample (by flame photometry)

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		L	T	P	C	CA	ES	Total
07210109P	PROGRAMMING LABORATORY	0	0	3	2	50	50	100

LIST OF EXPERIMENTS

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

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07210110P	ENGINEERING PRACTICES LABORATORY	0	0	3	2	50	50	100

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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<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">07210201G</td><td>COMMUNICATION SKILLS</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 equip students with effective speaking and listening skills in English and to help them develop the soft skills and people skills which will make them to excel in their job's. It enhance to students' performs at placement interviews.</td></tr>
<tr><td>1</td><td colspan="5">LISTENING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="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.</td></tr>
<tr><td>2</td><td colspan="5">COMMUNICATION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="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.</td></tr>
<tr><td>3</td><td colspan="5">CONVERSATION SKILLS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="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 answer Machines - Making / changing appointments - Making complaints – Reminding - Agreeing / disagreeing – Listening - Listening and taking messages - Giving instructions & responding to instructions.</td></tr>
<tr><td>4</td><td colspan="5">REMIDIAL GRAMMER & VOCABULARY</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="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.</td></tr>
<tr><td>5</td><td colspan="5">WRITTEN COMMUNICATION & CAREER SKILLS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Writing e-mails - Writing Reports - Note – taking and note – making - Preparing curriculum vitae and cover – letters - Facing an interview - Presentation skills - Persuasion skills.</td></tr>
<tr><td colspan="8">Total hours to be taught</td><td>45</td></tr>
<tr><td colspan="9">Reference(s):</td></tr>
<tr><td>1</td><td colspan="8">Rizvi M Ashraf, "Effective Technical Communication", 1st Edition, Tata McGrawHill Publishing Company Ltd., New Delhi, 2005.</td></tr>
<tr><td>2</td><td colspan="8">Kiranmai Dutt P, Geetha Rajeevan and Prakash C L N, "A Course in Communication Skills", by Ebek – Cambridge University Press India Pvt. Ltd.,</td></tr>
<tr><td>3</td><td colspan="8">Naterop, cup "Telephoning in English – Cambridge University Press India Pvt.Ltd., 2007.</td></tr>
<tr><td>4</td><td colspan="8">Richard, "New Interchange Services (Student's Book)" – Introduction, Level – 1, Level – 2, Level – 3, Cambridge University Press India Pvt.Ltd., 2007.</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>07210202G</td><td>ENGINEERING MATHEMATICS II</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="7">To identify multiple integrals problems from practical areas and understand effectively the geometrical aspects of analytic functions, complex variables and Laplace transform.</td></tr>
<tr><td>1</td><td colspan="4">MULTIPLE INTEGRALS</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="8">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).</td></tr>
<tr><td>2</td><td colspan="4">VECTOR CALCULUS</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="8">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.</td></tr>
<tr><td>3</td><td colspan="4">ANALYTIC FUNCTIONS</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="8">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+az, $\frac{1}{z}$, and bilinear transformation.</td></tr>
<tr><td>4</td><td colspan="4">COMPLEX INTEGRATION</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="8">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).</td></tr>
<tr><td>5</td><td colspan="4">LAPLACE TRANSFORM</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="8">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.</td></tr>
<tr><td colspan="6">Total hours to be taught</td><td colspan="2">60</td></tr>
<tr><td colspan="8">Reference(s):</td></tr>
<tr><td>1</td><td colspan="7">Veerarajan. T., "Engineering Mathematics (for first year), Fourth Edition, Tata McGraw- Hill Publishing Company Limited, New Delhi, 2005.</td></tr>
<tr><td>2</td><td colspan="7">Kandasamy. P, Thilagavathy. K and Gunavathy. K, "Engineering Mathematics" – S.Chand and Co. New Delhi 2007.</td></tr>
<tr><td>3</td><td colspan="7">Venkataraman.M.K, "Engineering Mathematics, Volume I & II Revised Enlarged Fourth Edition", The National Pub. Co., Chennai, 2004.</td></tr>
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<tr><td>07210203G</td><td>MATERIALS SCIENCE</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>Objective(s)</td><td colspan="8">To impart fundamental knowledge in various engineering subject and applications and application of conducting, Superconducting and Magnetic Materials. The application of dielectric, new engineering Materials and Nanomaterials in Modern Technology.</td></tr>
<tr><td>1</td><td colspan="5">SEMICONDUCTING MATERIALS AND DEVICES</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Elemental and compound semiconductors. Intrinsic and extrinsic semiconductors - Properties. Carrier concentration in intrinsic and extrinsic semiconductors (qualitative). Material preparation - Czochralski's technique and zone refining technique. Hall effect - Hall coefficient in extrinsic semiconductors, experimental determination of Hall coefficient. Application of Hall effect. Semiconductor devices – Solar Cells, LED, Photodiode, LDR, LCD and Strain Gauges.</td></tr>
<tr><td>2</td><td colspan="5">MAGNETIC MATERIALS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Ferro and ferrimagnetic materials – Properties. Heisenberg and domain theory of ferromagnetism. Hysteresis. Hard and soft magnetic materials. Ferrites – structure, preparation and applications. Devices and applications - Permanent magnets, transformer cores, magneto optical recording, magnetic valves and bearings, Superconducting Magnets, SQUIDS.</td></tr>
<tr><td>3</td><td colspan="5">SMART MATERIALS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Shape Memory alloys (SMA) – Characteristics, properties of NiTi alloy, application, advantages and disadvantages of SMA. Nanophase materials – preparation – mechanical alloying and solgel technique, properties & applications. Superconductivity BCS theory of superconductivity (qualitative),Types of superconductors, properties - High Tc superconductors. Application of superconductors – SQUID Cryotron, Magnetic levitation. Metallic glasses – Preparation, properties & applications.</td></tr>
<tr><td>4</td><td colspan="5">NANOMATERIALS AND CHARACTERIZATION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Fabrication methods – Top down processes – Milling, lithographics, machining process – Bottom-up process – Vapour phase deposition methods, plasma-assisted deposition process, MBE and MOVPE, liquid phase methods, colloidal and solgel methods – Methods or templating the growth of nanomaterials – Ordering of nanosystems, self-assembly and self-organisation – Preparation, safety and storage issues.</td></tr>
<tr><td>5</td><td colspan="5">NANODEVICES AND THEIR VARIOUS APPLICATIONS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Nanomagnetic materials – Particulate nanomagnets and geometrical nanomagnets – Magneto resistance – Probing nanomagnetic materials – Nanomagnetism in technology – Carbon nanotubes – fabrication-applications – Organic FET, organic LED's – Organic photovoltaics – Injection lasers, quantum cascade lasers, optical memories, electronic applications, colulomb blockade devices.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">45</td></tr>
<tr><td colspan="9">Reference(s):</td></tr>
<tr><td>1</td><td colspan="8">Jayakumar S, "Materials Science", R K Publishers, Coimbatore, 2004.</td></tr>
<tr><td>2</td><td colspan="8">Raghavan V, "Materials Science and Engineering - A first course", Prentice Hall o India, New Delhi, 2001.</td></tr>
<tr><td>3</td><td colspan="8">James F Shackelford, S "Introduction to Materials Science for Engineers", 6th edition, Macmillan Publishing Company, New York. 2004.</td></tr>
<tr><td>4</td><td colspan="8">William D Callister Jr, "Materials Science and Engineering – An Introduction", John Wiley and Sons Inc., 6th edition, New York, 2003.</td></tr>
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07210204G	ENVIRONMENTAL SCIENCE	3	1	0	4	50	50	100
Objective(s)	The student should be conversant with The evolution of environmentalism and the importance of environmental studies, Focuses on the various natural resources and the current threats to their sustainability, Significance and protection of bio diversity and various forms of environmental degradation, The 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

Reference(s) :

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

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<tr><td colspan="2">07210205S</td><td>BASICS OF ELECTRICAL ENGINEERING</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>1</td><td colspan="4">FUNDAMENTALS OF DC AND AC CIRCUITS</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">Fundamentals of DC circuits: Ohm’s law, Kirchhoff’s law, Simple resistive circuits – Effect of 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</td></tr>
<tr><td>2</td><td colspan="4">FUNDAMENTALS OF MAGNETIC CIRCUITS</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">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.</td></tr>
<tr><td>3</td><td colspan="4">DC MACHINES AND TRANSFORMERS</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">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.</td></tr>
<tr><td>4</td><td colspan="4">INDUCTION MACHINES</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">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.</td></tr>
<tr><td>5</td><td colspan="4">POWER SUPPLIES</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">Half Wave and Full Wave Rectifiers – Bridge Rectifier – Types of filters – Voltage Regulator – Introduction to SMPS and UPS</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">B.L.Theraja and A.K.Theraja, “Electrical Technology”, S.Chand & Company LTD, New Delhi, 2005</td></tr>
<tr><td>2</td><td colspan="8">V.N.Mittel, “Basic Electrical Engineering”,Tata Mc Graw Hill, New Delhi, 1990.</td></tr>
<tr><td>3</td><td colspan="8">V. Del Toro, “Electrical Engineering Fundamentals”, Prentice Hall of India, New Delhi, 1993.</td></tr>
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<tr><td colspan="8">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2007</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>
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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">07210206S</td><td>BASICS OF ELECTRONICS ENGINEERING</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>1</td><td colspan="4">INTRODUCTION TO SEMICONDUCTORS AND DIODES</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">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="4">TRANSISTORS-INTRODUCTION TO SMALL SIGNAL AMPLIFIER</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">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="4">LARGE SIGNAL AMPLIFICATION – OSCILLATORS</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">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="4">DIGITAL LOGIC AND COMBINATIONAL CIRCUITS</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">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="4">SEQUENTIAL LOGIC CIRCUITS</td><td colspan="2">Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">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="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">Charles A Schuler,”Electronics Principles and Applications”, 6th edition, Mc. Graw 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>
<tr><td>4</td><td colspan="8">Basic Electronics, Santiram Kal A.P. Godse U.A. Bukshi, PHI, 2002.</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation									R 2007
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	
07210207P	ENGINEERING GRAPHICS LABORATORY	1	0	3	3	50	50	100	
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 book on 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 2007
Department	Information Technology	Programme Code & Name			21: B.Tech. Information Technology			
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Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
07210208P	ELECTRICAL ENGINEERING LABORATORY	0	0	3	2	50	50	100

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 and Full Wave Rectifiers
8. Study of Passive Filters
9. Study of Voltage Regulator Circuits
10. Study of SMPS and UPS

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		L	T	P	C	CA	ES	Total
07210209P	ELECTRONICS ENGINEERING LABORATORY	0	0	3	2	50	50	100

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 for 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.

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Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
07210210P	COMPREHENSION I	0	0	3	0	100	00	100
Objective(s)	i. To improve the skill level of Engineering, Technology and Applied Science students. ii. To improve the employability of students in placement interviews.							

1	For each subject 200 Keywords/important words or terms (5 units x 40 words) are to be prepared using the students.
2	These 200 Keywords are to be printed in double column (2 x 50 words) and in 2 pages and is to be handled over each student for all the subjects.
3	The staff who handled the subject in the previous semester will handle their discussion period (3 periods / semester) as given below.
4	The staff will 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.
6	Each test will carry 100 questions and two hours duration. The questions will be of objective type: 'W' and 'H' type questions by attaching with keywords.
7	Based on Test-I and Test-II, sessional marks (maximum 50 marks) will be awarded.
8	Test-III will be held for all the units and all the subjects. The passing norms will be similar as other subjects (i.e. minimum 50/100 marks)

Schedule for Conduct of Comprehension Subject

Total No of weeks planned:10	Total No of subjects: 5 to 7	Total duration per week: 3 periods

Week No	Duration: 1½ period Subject No (No of units)	Duration: 1½ period Subject No (No of units)
W1	S1(3)	S2(3)
W2	S3(3)	S4(3)
W3	S5(3)	S6(3)
W4	Test-I (Portion: 3 units in each subject)	
W5	S1(2)	S2(2)
W6	S3(2)	S4(2)
W7	S5(2)	S6(2)
W8	Test-II (Portion: 2 units in each subject)	
W9	Discussion	
W10	Test-III (All 5 units and all the subjects)	

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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 III</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">07210301G</td><td colspan="2">ENGINEERING MATHEMATICS III</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">The course objective is to impact analytical skills of 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.</td></tr>
<tr><td>1</td><td colspan="5">PARTIAL DIFFERENTIAL EQUATIONS</td><td colspan="2">Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="9">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.</td></tr>
<tr><td>2</td><td colspan="5">FOURIER SERIES</td><td colspan="2">Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="9">Dirichlet's conditions – General Fourier series – Odd and even functions – Half range sine series – Half range cosine series – Parseval's identify – Harmonic Analysis.</td></tr>
<tr><td>3</td><td colspan="5">BOUNDARY VALUE PROBLEMS</td><td colspan="2">Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="9">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.</td></tr>
<tr><td>4</td><td colspan="5">FOURIER TRANSFORM</td><td colspan="2">Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="9">Fourier transform pair – Sine and Cosine transforms – Properties – Transforms of simple functions – Convolution theorem – Parseval's identity – Problems.</td></tr>
<tr><td>5</td><td colspan="5">Z -TRANSFORM AND DIFFERENCE EQUATIONS</td><td colspan="2">Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="9">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.</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">Grewal, B.S., "Higher Engineering Mathematics", Thirty Sixth Edition, Khanna Publishers, Delhi, 2001.</td></tr>
<tr><td>2</td><td colspan="8">T.Veerarajan, "Engineering Mathematics-III", Tata McGraw Hill Publishing Company Limited, New Delhi, Second reprint 2006.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Kandasamy, P., Thilagavathy, K., and Gunavathy, K., "Engineering Mathematics Volume III", S.Chand & Company Ltd., New Delhi, 1996.</td></tr>
<tr><td>2</td><td colspan="8">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.</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">07210302C</td><td>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">Aim</td><td colspan="7">To understand the concepts of continuous time, discrete time signals and the analysis of continuous and discrete systems.</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>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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K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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
07210303C	COMPUTER ARCHITECTURE	3	0	0	3	50	50	100
Aim	To discuss the basic structure of a digital computer and to study in detail the organization of the Control unit, the Arithmetic and Logical unit, the Memory unit and the I/O unit.							
Objective(s)	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.							

1	BASIC STRUCTURE OF DIGITAL COMPUTERS	Total Hrs	10
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.			
2	ARITHMETIC	Total Hrs	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.			
3	BASIC PROCESSING UNIT	Total Hrs	9
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.			
4	MEMORY SYSTEM	Total Hrs	9
Basic concepts – decoders and encoders – multiplexers and demultiplexers - semiconductor RAMs, ROMs – Speed, size and cost – cache memories - Performance consideration.			
5	I/O ORGANIZATION	Total Hrs	9
Accessing I/O devices – Enabling and disabling Interrupts – Direct Memory Access – Buses – Interface Circuits – Standard I/O Interfaces (PCI, SCSI, USB).			
Total hours to be taught			45

Text book (s) :	
1	Carl Hamacher, Zvonko Vranesic and Safwat Zaky, “Computer Organization” 5th Ed, McGraw Hill, 2002.
2	M.Morris Mano,” Digital Design,” third edition, Pearson Education, 2002.
Reference (s) :	
1	William Stallings, “Computer Organization & Architecture – Designing for Performance”, 6th Ed., Pearson Education, 2003 reprint.
2	David A.Patterson and John L.Hennessy, “Computer Organization & Design, the hardware / software interface”, 2nd Ed, Morgan Kaufmann, 2002 reprint.
3	John P.Hayes, “Computer Architecture & Organization”, 3rd Ed, McGraw-Hill, 1998.
4	Charles H.Roth, Jr. “fundamentals of Lock Design,” Fourth edition, Jaico Publihsing House, 2000.
5	Donald D.Givone, “Digital Principles and Design,” Tat McGraw-Hill, 2003.

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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">07210304C</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 colspan="2">Aim</td><td colspan="6">To provide an in-depth knowledge in problem solving techniques and data structures.</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="6">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>Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">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>Total Hrs</td><td>8</td></tr>
<tr><td colspan="8">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>Total Hrs</td><td>10</td></tr>
<tr><td colspan="8">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>Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">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>Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">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="8">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="7">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="7">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="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">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="7">A.Chitra and P.T.Rajan, “Data Structures”, Vijay Nicole, 2006.</td></tr>
<tr><td>3</td><td colspan="7">ISRD Group, “Data Structures using C”, Tata McGraw Hill, 2006.</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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
07210305C	PRINCIPLES OF COMMUNICATION	3	1	0	4	50	50	100
Aim	To have knowledge about Analog and Digital transmission of both Analog data and Digital Data, Security, modulation and different accessing methods.							
Objective(s)	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.							

1	AMPLITUDE MODULATION: TRANSMISSION AND RECEPTION	Total Hrs	9+3
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.			
2	ANGLE MODULATION: TRANSMISSION AND RECEPTION	Total Hrs	9+3
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.			
3	DIGITAL MODULATION TECHNIQUES	Total Hrs	9+3
Introduction, ASK, Binary PSK, DPSK, Differentially encoded PSK, QPSK, Binary FSK, Duobinary encoding – Performance comparison of various systems of Digital Modulation.			
4	BASEBAND DATA TRANSMISSION	Total Hrs	9+3
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.			
5	SPREAD SPECTRUM AND MULTIPLE ACCESS TECHNIQUES	Total Hrs	9+3
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.			
Total hours to be taught			60

Text book (s) :

1	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).
2	Simon Haykin, Digital Communications, John Wiley & Sons, 2003. (UNIT IV Chapters 3,4; UNIT V Chapters – 7,8)

Reference (s) :

1	Simon Haykin, Communication Systems, John Wiley & Sons, 4th edn. 2001.
2	Taub & Schilling, Principles of Communication Systems, TMH, 2nd edn. 2003.
3	Martin S.Roden, Analog and Digital Communication System, PHI, 3rd edn. 2002.
4	Blake, Electronic Communication Systems, Thomson Delman, 2nd edn., 2005.

<table>
<tr><td colspan="7">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2007</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 III</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>07210306C</td><td>ADVANCED C & C++</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>Aim</td><td colspan="7">To present the advanced features of C and the concepts of object oriented programming in C++.</td></tr>
<tr><td>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="4">ADVANCED C</td><td>Total Hrs</td><td colspan="2">8+3</td></tr>
<tr><td colspan="8">Review of Pointers, Structures, Unions and File Operations – Simple Applications.</td></tr>
<tr><td>2</td><td colspan="4">OVERVIEW OF C++</td><td>Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="8">Principles of Object-Oriented Programming – Beginning with C++ - Tokens, Expressions and Control Structures - Functions in C++.</td></tr>
<tr><td>3</td><td colspan="4">CONCEPTS OF OBJECT-ORIENTED PROGRAMMING</td><td>Total Hrs</td><td colspan="2">10+3</td></tr>
<tr><td colspan="8">Classes and Objects – Function Overloading, Copy Constructors and Default arguments. - Operator Overloading –Inheritance</td></tr>
<tr><td>4</td><td colspan="4">POINTERS AND FILE OPERATIONS</td><td>Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="8">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="4">ADDITIONAL FEATURES</td><td>Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="8">Templates – Exception handling – Standard Template Library: Overview, Container Class, Vectors, Lists, Strings.</td></tr>
<tr><td colspan="6">Total hours to be taught</td><td colspan="2">60</td></tr>
<tr><td colspan="8">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="7">Yashavant Kanetkar, “Let us C”, BPB Publications, 2006.</td></tr>
<tr><td>2</td><td colspan="7">Herbert Schildt, “The Complete Reference C++”, Tata McGraw Hill, Fourth Edition 2008.</td></tr>
<tr><td colspan="8">Reference :</td></tr>
<tr><td>1</td><td colspan="7">E. Balagurusamy, “Object Oriented Programming with C++”, Tata McGraw Hill, Fourth Edition 2008.</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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
07210307P	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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<tr><td colspan="8">Semester III</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><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>07210308P</td><td>DATA STRUCTURES 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>Aim</td><td colspan="8">To teach the principles of good programming practice and to give a practical training in writing efficient programs in C.</td></tr>
<tr><td>Objective(s)</td><td colspan="8">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</td></tr>
<tr><td colspan="9">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</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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
07210309P	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.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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
07210310P	COMPREHENSION II	0	0	3	0	100	00	100
Objective(s)	i. To improve the skill level of Engineering, Technology and Applied Science students. ii. To improve the employability of students in placement interviews.							

1	For each subject 200 Keywords/important words or terms (5 units x 40 words) are to be prepared using the students.
2	These 200 Keywords are to be printed in double column (2 x 50 words) and in 2 pages and is to be handled over each student for all the subjects.
3	The staff who handled the subject in the previous semester will handle their discussion period (3 periods / semester) as given below.
4	The staff will 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.
6	Each test will carry 100 questions and two hours duration. The questions will be of objective type: 'W' and 'H' type questions by attaching with keywords.
7	Based on Test-I and Test-II, sessional marks (maximum 50 marks) will be awarded.
8	Test-III will be held for all the units and all the subjects. The passing norms will be similar as other subjects (i.e. minimum 50/100 marks)

Schedule for Conduct of Comprehension Subject

Total No of weeks planned:10	Total No of subjects: 5 to 7	Total duration per week: 3 periods

Week No	Duration: 1½ period Subject No (No of units)	Duration: 1½ period Subject No (No of units)
W1	S1(3)	S2(3)
W2	S3(3)	S4(3)
W3	S5(3)	S6(3)
W4	Test-I (Portion: 3 units in each subject)	
W5	S1(2)	S2(2)
W6	S3(2)	S4(2)
W7	S5(2)	S6(2)
W8	Test-II (Portion: 2 units in each subject)	
W9	Discussion	
W10	Test-III (All 5 units and all the subjects)	

<table>
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<tr><td>Department</td><td colspan="2">Information Technology</td><td colspan="2">Programme Code & Name</td><td colspan="4">21: B.Tech. Information Technology</td></tr>
<tr><td colspan="9">Semester III</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>07210311P</td><td>CAREER COMPETENCY DEVELOPMENT I</td><td>0</td><td>0</td><td>2</td><td>0</td><td>100</td><td>00</td><td>100</td></tr>
<tr><td>Objective(s)</td><td colspan="8">i. To improve the skill level of Engineering, Technology and Applied Science students.
ii. To improve the employability of students in placement interviews</td></tr>
<tr><td>Skills sets to be improved

Focus</td><td colspan="8">a. Aptitude skills
• Arithmetic ability
• Verbal Reasoning
• Non verbal Reasoning
b. Programming skills
• C language (All Branches)
• OOPS concepts and C++ (Circuit Branches - EEE, ECE,CSE,IT and BT)
• Data Structures (Circuit Branches - EEE,ECE,CSE,IT and BT))
c. Written Communication Skills
• Comprehension
• Grammar
• Essay Writing
• Technical Report Writing
• Technical paper Writing
d. Oral Communication Skills
• News Reading
• Informing a News item
• Self introduction
• 2 minutes talk – Informed
• 2 minutes talk - Extempore
e. Technical Paper Presentation
• Presenting a paper on recent topics
f. Group Interaction
• Debate
• Group Discussion – Informed Topic
• Group Discussion – Topic on the spot
g. Technical Interview Skills
• Basic MPC knowledge
• Broad Knowledge of the branch
• Indepth knowledge on specific subjects of interest
h. HR Interview Skills
• Adoptability
• Creativity
• Flexibility
• Achievement orientation
• Continuous learning
• Hardworking nature
• Decisiveness
• Self development
• Questioning

The focus of CCD is to develop these in three semesters (CCD-I, II and III) and reinforce them in another two semesters (CCD IV and V).</td></tr>
<tr><td>Execution</td><td colspan="8">• Total No. of weeks : 12
• 3 Hrs/week and 2 credits
• Only Continuous Assessment and No End Semester examination.
• Evaluation based on written test, oral test and technical paper presentation.</td></tr>
</table>

	• Every 20 students should be engaged by a staff member during communication hour and oral test • Every 30 students should be monitored by a staff member to conduct written test.	
Schedule	Week	Activity
	1	Training
	2	Training
	3	Evaluation I - Written
	4	Evaluation I - Oral
	5	Training
	6	Evaluation II - Written
	7	Evaluation II - Oral
	8	Training
	9	Evaluation III - Written
	10 - 12	Evaluation III - Oral
Evaluation	Evaluation I	60 marks(average of 3 tests)
	Evaluation II	20 marks
	Evaluation III	20 marks
	Total	100 marks

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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
07210401C	PROBABILITY AND STATISTICS	3	1	0	4	50	50	100
Aim	The scope of probability and statistics in engineering applications is well known. This course aims at providing the requisite skill to apply the statistical tools in engineering problem.							
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 2to8)
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 2007
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
07210402C	SOFTWARE ENGINEERING	3	0	0	3	50	50	100
Aim	To introduce the methodologies involved in the development and maintenance of software (i.e) over its entire life cycle.							
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.							

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<tr><td colspan="9">Semester IV</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2" colspan="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>07210403C</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>Aim</td><td colspan="8">To introduce the fundamental concepts of information theory: data compaction, data compression, data transmission, error detection and correction.</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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<table>
<tr><td colspan="8">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2007</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 IV</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">07210404C</td><td>JAVA 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">Aim</td><td colspan="7">To present the concepts of Object Oriented Programming in Java and advanced features.</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>Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">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>Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">Packages and Interfaces, Exception handling, Multithreaded programming, Strings.</td></tr>
<tr><td>3</td><td colspan="5">PACKAGES</td><td>Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">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>Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">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>Total Hrs</td><td colspan="2">12</td></tr>
<tr><td colspan="9">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 colspan="2">60</td></tr>
<tr><td colspan="9">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="8">Herbert Schildt, “The complete Reference – Java 2”, fifth edition, Tata McGraw Hill Publishing Company, 2006.</td></tr>
<tr><td>2</td><td colspan="8">H.M. Deitel, P.J. Deitel “JAVA™ How to program”, sixth edition, Pearson Education – 2007. [JDBC only].</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Advanced programming in JAVA prentice – Hall of India Private Limited NIIT – 2003.</td></tr>
<tr><td>2</td><td colspan="8">Pratik patel and Karlmoss “Java Data base programming with JDBC”, Second Edition, Dream tech press – 2000.</td></tr>
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<tr><td colspan="9">Semester IV</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">07210405C</td><td>DIGITAL SIGNAL PROCESSING</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">Aim</td><td colspan="7">To review signals and systems, study DFT and FFT, discuss the design of IIR & FIR filters and study typical applications of digital signal processing.</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">To have an overview of signals and systems, study DFT & FFT, study the design of IIR filters, study the design of FIR filters, study 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>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>12</td></tr>
<tr><td colspan="9">Introduction to DFT – Efficient computation of DFT Properties of DFT – FFT algorithms – Radix-2 and Radix-4 FFT algorithms – Decimation in Time – Decimation in Frequency algorithms –Use of FFT algorithms in Linear Filtering and correlation.</td></tr>
<tr><td>3</td><td colspan="5">IIR FILTER DESIGN</td><td colspan="2">Total Hrs</td><td>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 – Design of IIR filter in the Frequency domain.</td></tr>
<tr><td>4</td><td colspan="5">FIR FILTER DESIGN</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="9">Symmetric & Antisymteric FIR filters – Linear phase filter – Windowing technique – Rectangular, Kaiser windows – Frequency sampling techniques – Structure for FIR systems.</td></tr>
<tr><td>5</td><td colspan="5">FINITE WORD LENGTH EFFECTS</td><td colspan="2">Total Hrs</td><td>12</td></tr>
<tr><td colspan="9">Quantization noise – derivation for quantization noise power – Fixed point and binary floating point number representation – comparison – over flow error – truncation error – co-efficient quantization error - limit cycle oscillation – signal scaling – analytical model of sample and hold operations – Application of DSP – Model of Speech Wave Form – Vocoder.</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">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">07210406C</td><td colspan="2">MICROPROCESSORS AND MICROCONTROLLERS</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">Aim</td><td colspan="7">To have an in depth knowledge of the architecture and programming of 8-bit and 16-bit Microprocessors, Microcontrollers and to study how to interface various peripheral devices with them.</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>12</td></tr>
<tr><td colspan="9">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>12</td></tr>
<tr><td colspan="9">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>12</td></tr>
<tr><td colspan="9">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>12</td></tr>
<tr><td colspan="9">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>12</td></tr>
<tr><td colspan="9">Architecture of 8051-Signals-Operational features- Instruction set-Memory and I/O Addressing-Interrupts-Application.</td></tr>
<tr><td colspan="8">Total hours to be taught</td><td>60</td></tr>
<tr><td colspan="9">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="8">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="8">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="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Douglas V.Hall, ”Microprocessor and Interfacing” Programming and Hardware”. TMH, Third edition, 2002.</td></tr>
<tr><td>2</td><td colspan="8">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="8">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 2007
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
07210407P	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 2007
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
07210408P	DSP AND COMMUNICATIONS SYSTEMS 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. Implementation of DFT and FFT
6. Butterworth filter
7. Chebyshev filter
8. FIR filter design. [any one Technique]
9. IIR filter design [any one Technique]
10. Design of upsampling and downsampling signals
11. Generation and detection of Amplitude Modulation
12. Generation of Frequency modulation and its detection.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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Semester IV								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
07210409P	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.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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Semester IV								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
07210410P	COMPREHENSION III	0	0	3	0	100	00	100
Objective(s)	i. To improve the skill level of Engineering, Technology and Applied Science students. ii. To improve the employability of students in placement interviews.							

1	For each subject 200 Keywords/important words or terms (5 units x 40 words) are to be prepared using the students.
2	These 200 Keywords are to be printed in double column (2 x 50 words) and in 2 pages and is to be handled over each student for all the subjects.
3	The staff who handled the subject in the previous semester will handle their discussion period (3 periods / semester) as given below.
4	The staff will 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.
6	Each test will carry 100 questions and two hours duration. The questions will be of objective type: 'W' and 'H' type questions by attaching with keywords.
7	Based on Test-I and Test-II, sessional marks (maximum 50 marks) will be awarded.
8	Test-III will be held for all the units and all the subjects. The passing norms will be similar as other subjects (i.e. minimum 50/100 marks)

Schedule for Conduct of Comprehension Subject

Total No of weeks planned:10	Total No of subjects: 5 to 7	Total duration per week: 3 periods

Week No	Duration: 1½ period Subject No (No of units)	Duration: 1½ period Subject No (No of units)
W1	S1(3)	S2(3)
W2	S3(3)	S4(3)
W3	S5(3)	S6(3)
W4	Test-I (Portion: 3 units in each subject)	
W5	S1(2)	S2(2)
W6	S3(2)	S4(2)
W7	S5(2)	S6(2)
W8	Test-II (Portion: 2 units in each subject)	
W9	Discussion	
W10	Test-III (All 5 units and all the subjects)	

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<tr><td colspan="9">Semester IV</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2" colspan="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>07210411P</td><td colspan="2">CAREER COMPETENCY DEVELOPMENT II</td><td>0</td><td>0</td><td>2</td><td>0</td><td>100</td><td>00</td><td>100</td></tr>
<tr><td>Objective(s)</td><td colspan="8">i. To improve the skill level of Engineering, Technology and Applied Science students.
ii. To improve the employability of students in placement interviews</td></tr>
<tr><td>Skills sets to be improved

Focus</td><td colspan="8">a. Aptitude skills
• Arithmetic ability
• Verbal Reasoning
• Non verbal Reasoning
b. Programming skills
• C language (All Branches)
• OOPS concepts and C++ (Circuit Branches - EEE, ECE,CSE,IT and BT)
• Data Structures (Circuit Branches - EEE,ECE,CSE,IT and BT))
c. Written Communication Skills
• Comprehension
• Grammar
• Essay Writing
• Technical Report Writing
• Technical paper Writing
d. Oral Communication Skills
• News Reading
• Informing a News item
• Self introduction
• 2 minutes talk – Informed
• 2 minutes talk - Extempore
e. Technical Paper Presentation
• Presenting a paper on recent topics
f. Group Interaction
• Debate
• Group Discussion – Informed Topic
• Group Discussion – Topic on the spot
g. Technical Interview Skills
• Basic MPC knowledge
• Broad Knowledge of the branch
• Indepth knowledge on specific subjects of interest
h. HR Interview Skills
• Adoptability
• Creativity
• Flexibility
• Achievement orientation
• Continuous learning
• Hardworking nature
• Decisiveness
• Self development
• Questioning

The focus of CCD is to develop these in three semesters (CCD-I, II and III) and reinforce them in another two semesters (CCD IV and V).</td></tr>
<tr><td>Execution</td><td colspan="8">• Total No. of weeks : 12
• 3 Hrs/week and 2 credits
• Only Continuous Assessment and No End Semester examination.
• Evaluation based on written test, oral test and technical paper presentation.</td></tr>
</table>

	• Every 20 students should be engaged by a staff member during communication hour and oral test • Every 30 students should be monitored by a staff member to conduct written test.	
Schedule	Week	Activity
	1	Training
	2	Training
	3	Evaluation I - Written
	4	Evaluation I - Oral
	5	Training
	6	Evaluation II - Written
	7	Evaluation II - Oral
	8	Training
	9	Evaluation III - Written
	10 - 12	Evaluation III - Oral
Evaluation	Evaluation I	60 marks(average of 3 tests)
	Evaluation II	20 marks
	Evaluation III	20 marks
	Total	100 marks

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<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="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">07210501S</td><td colspan="2">PRINCIPLES OF 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">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.</td></tr>
<tr><td>1.</td><td colspan="5">HISTORICAL DEVELOPMENT</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="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.</td></tr>
<tr><td>2.</td><td colspan="5">PLANNING</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="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.</td></tr>
<tr><td>3.</td><td colspan="5">ORGANISING</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="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.</td></tr>
<tr><td>4.</td><td colspan="5">DIRECTING</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="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.</td></tr>
<tr><td>5.</td><td colspan="5">CONTROLLING</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="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.</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">Harold Kooritz & Heinz Weihrich, “Essentials of Management”, Tata McGraw-Hill, 1998.</td></tr>
<tr><td>2.</td><td colspan="8">Joseph L Massie, “Essentials of Management”, Prentice Hall of India, (Pearson) Fourth Edition, 2003.</td></tr>
<tr><td colspan="9">Reference(s):</td></tr>
<tr><td>1.</td><td colspan="8">Tripathy PC And Reddy PN, “Principles of Management”, Tata McGraw Hill, 1999.</td></tr>
<tr><td>2.</td><td colspan="8">Decenzo David, Robbin Stephen A, “Personnel and Human Reasons Management”, Prentice Hall of India, 1996.</td></tr>
<tr><td>3.</td><td colspan="8">JAF Stomer, Freeman R. E and Daniel R “Gilbert Management”, Pearson Education, Sixth Edition, 2004.</td></tr>
<tr><td>4.</td><td colspan="8">Fraidoon Mazda, “Engineering Management”, Addison Wesley, 2000.</td></tr>
<tr><td>5.</td><td colspan="8">Prasad L.M, “Principles of Management”, Sultan Chand & Sons Ltd, 2003.</td></tr>
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<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="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">07210502C</td><td colspan="2">OBJECT ORIENTED ANALYSIS AND 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">Aim</td><td colspan="7">To understand the concepts of Object Oriented Analysis and Design.</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">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.</td></tr>
<tr><td>1</td><td colspan="5">INTRODUCTION</td><td>Total Hrs</td><td colspan="3">8</td></tr>
<tr><td colspan="9">An Overview of Object Oriented Systems Development - Object Basics – Object Oriented Systems Development Life Cycle.</td></tr>
<tr><td>2</td><td colspan="5">OBJECT ORIENTED METHODOLOGIES</td><td>Total Hrs</td><td colspan="3">12</td></tr>
<tr><td colspan="9">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.</td></tr>
<tr><td>3</td><td colspan="5">OBJECT ORIENTED ANALYSIS</td><td>Total Hrs</td><td colspan="3">9</td></tr>
<tr><td colspan="9">Identifying use cases - Object Analysis - Classification – Identifying Object relationships - Attributes and Methods.</td></tr>
<tr><td>4</td><td colspan="5">OBJECT ORIENTED DESIGN</td><td>Total Hrs</td><td colspan="3">8</td></tr>
<tr><td colspan="9">Design axioms - Designing Classes – Access Layer - Object Storage - Object Interoperability.</td></tr>
<tr><td>5</td><td colspan="5">SOFTWARE QUALITY AND USABILITY</td><td>Total Hrs</td><td colspan="3">8</td></tr>
<tr><td colspan="9">Designing Interface Objects – Software Quality Assurance – System Usability - Measuring User Satisfaction.</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">Ali Bahrami, “Object Oriented Systems Development”, Tata McGraw-Hill, 2002 (Unit I, III, IV, V).</td></tr>
<tr><td>2</td><td colspan="8">Martin Fowler, “UML Distilled”, Second Edition, PHI/Pearson Education, 2002. (UNIT II).</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Stephen R. Schach, “Introduction to Object Oriented Analysis and Design”, Tata McGraw-Hill, 2003.</td></tr>
<tr><td>2</td><td colspan="8">James Rumbaugh, Ivar Jacobson, Grady Booch “The Unified Modeling Language Reference Manual”, Addison Wesley, 1999.</td></tr>
<tr><td>3</td><td colspan="8">Hans-Erik Eriksson, Magnus Penker, Brain Lyons, David Fado, “UML Toolkit”, OMG Press Wiley Publishing Inc., 2004.</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">07210503C</td><td>OPERATING 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">Aim</td><td colspan="7">To have a thorough knowledge of processes, scheduling concepts, memory management, I/O and file systems in an operating system.</td></tr>
<tr><td colspan="2">Objective(s)</td><td colspan="7">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.</td></tr>
<tr><td>1</td><td colspan="5">BASIC CONCEPTS</td><td colspan="2">Total Hrs</td><td>9+3</td></tr>
<tr><td colspan="9">Introduction - Mainframe systems – Desktop Systems – Multiprocessor Systems – Distributed Systems – Clustered Systems – Real Time Systems – Handheld Systems - Hardware Protection - System Components – Operating System Services – System Calls – System Programs - Process Concept – Process Scheduling – Operations on Processes – Cooperating Processes – Inter-process Communication.</td></tr>
<tr><td>2</td><td colspan="5">PROCESS MANAGEMENT</td><td colspan="2">Total Hrs</td><td>9+3</td></tr>
<tr><td colspan="9">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 – Critical regions – Monitors.</td></tr>
<tr><td>3</td><td colspan="5">MEMORY MANAGEMENT - I</td><td colspan="2">Total Hrs</td><td>9+3</td></tr>
<tr><td colspan="9">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.</td></tr>
<tr><td>4</td><td colspan="5">MEMORY MANAGEMENT - II</td><td colspan="2">Total Hrs</td><td>9+3</td></tr>
<tr><td colspan="9">Virtual Memory – Demand Paging – Process creation – Page Replacement – Allocation of frames – Thrashing - File Concept – Access Methods – Directory Structure – File System Mounting – File Sharing – Protection</td></tr>
<tr><td>5</td><td colspan="5">I/O SYSTEMS</td><td colspan="2">Total Hrs</td><td>9+3</td></tr>
<tr><td colspan="9">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. Case Study: The Linux System, Windows</td></tr>
<tr><td colspan="8">Total hours to be taught</td><td>60</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">Abraham Silberschatz, Peter Baer Galvin and Greg Gagne, “Operating System Concepts”, Sixth Edition, John Wiley & Sons (ASIA) Pvt. Ltd, 2003.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Harvey M. Deitel, “Operating Systems”, Second Edition, Pearson Education Pvt. Ltd, 2002.</td></tr>
<tr><td>2</td><td colspan="8">Andrew S. Tanenbaum, “Modern Operating Systems”, Prentice Hall of India Pvt. Ltd, 2003.</td></tr>
<tr><td>3</td><td colspan="8">William Stallings, “Operating System”, Prentice Hall of India, 4th Edition, 2003.</td></tr>
<tr><td>4</td><td colspan="8">Pramod Chandra P. Bhatt – “An Introduction to Operating Systems, Concepts and Practice”, PHI, 2003.</td></tr>
</table>

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<tr><td colspan="2">07210504C</td><td colspan="2">COMPUTER NETWORKS</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 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.</td></tr>
<tr><td>1</td><td colspan="5">DATA COMMUNICATIONS</td><td>Total Hrs</td><td colspan="2">8+3</td></tr>
<tr><td colspan="8">Networks – Components and Categories –Line Configuration – Topologies –Protocols and Standards – ISO / OSI model – Transmission Media – Coaxial Cable – Fiber Optics – Line Coding – Modems .</td></tr>
<tr><td>2</td><td colspan="5">DATA LINK LAYER</td><td>Total Hrs</td><td colspan="2">10+3</td></tr>
<tr><td colspan="8">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 - IEEE 802.11 – FDDI - SONET – Bridges.</td></tr>
<tr><td>3</td><td colspan="5">NETWORK LAYER</td><td>Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="8">Internetworks – Circuit Switching – Packet Switching– IP addressing methods – Subnetting – Routers- Routing Algorithms – Distance Vector Routing – Link State Routing.</td></tr>
<tr><td>4</td><td colspan="5">TRANSPORT LAYER</td><td>Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="8">Duties of Transport Layer – Multiplexing – Demultiplexing – Sockets – User Datagram Protocol (UDP) – Transmission Control Protocol (TCP) – Congestion Control – Quality of services (QOS) – Integrated Services.</td></tr>
<tr><td>5</td><td colspan="5">APPLICATION LAYER</td><td>Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="8">Domain Name Space (DNS) – SMTP – FTP – HTTP - WWW – Security – Cryptography –Privacy–Digital Signature–PGP-Access Authorization.</td></tr>
<tr><td colspan="7">Total hours to be taught</td><td colspan="2">60</td></tr>
<tr><td colspan="8">Text book :</td></tr>
<tr><td>1</td><td colspan="7">Behrouz A. Forouzan, “Data communication and Networking Update”, Tata McGraw-Hill, Second Edition, 2006.</td></tr>
<tr><td colspan="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">James F. Kurose and Keith W. Ross, “Computer Networking: A Top-Down Approach Featuring the Internet”, Pearson Education, 2003.</td></tr>
<tr><td>2</td><td colspan="7">Larry L.Peterson and Peter S. Davie, “Computer Networks”, Harcourt Asia Pvt. Ltd., Second Edition.</td></tr>
<tr><td>3</td><td colspan="7">Andrew S. Tanenbaum, “Computer Networks”, PHI, Fourth Edition, 2003.</td></tr>
<tr><td>4</td><td colspan="7">William Stallings, “Data and Computer Communication”, Sixth Edition, Pearson Education, 2000.</td></tr>
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K.S.Rangasamy College of Technology - Autonomous Regulation									R 2007
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	
07210505S	DATABASE MANAGEMENT SYSTEMS	3	1	0	4	50	50	100	
Aim	To provide a strong foundation in database technology and an introduction to the current trends in this field.								
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, 2002.								
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.								

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Semester V									
Course Code	Course Name	Hours / Week			Credit	Maximum Marks			
		L	T	P	C	CA	ES	Total	
07210506C	TELECOMMUNICATION SYSTEMS	3	0	0	3	50	50	100	
Aim	To gain knowledge about microwave, satellite, optical, telephone, television and cellular communication systems.								
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 2007
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
07210507P	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>07210508P</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, GNOME & KDE 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, Scanner, Ethernet and TCP /IP.</td></tr>
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<tr><td>07210509P</td><td colspan="2">DATABASE MANAGEMENT SYSTEMS LABORATORY</td><td>0</td><td>0</td><td>3</td><td>2</td><td>100</td><td>00</td><td>100</td></tr>
<tr><td colspan="9">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.</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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Semester V								
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		L	T	P	C	CA	ES	Total
07210510P	COMPREHENSION IV	0	0	3	0	100	00	100
Objective(s)	i. To improve the skill level of Engineering, Technology and Applied Science students. ii. To improve the employability of students in placement interviews.							
1	For each subject 200 Keywords/important words or terms (5 units x 40 words) are to be prepared using the students.							
2	These 200 Keywords are to be printed in double column (2 x 50 words) and in 2 pages and is to be handled over each student for all the subjects.							
3	The staff who handled the subject in the previous semester will handle their discussion period (3 periods / semester) as given below.							
4	The staff will 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.							
6	Each test will carry 100 questions and two hours duration. The questions will be of objective type: 'W' and 'H' type questions by attaching with keywords.							
7	Based on Test-I and Test-II, sessional marks (maximum 50 marks) will be awarded.							
8	Test-III will be held for all the units and all the subjects. The passing norms will be similar as other subjects (i.e. minimum 50/100 marks)							

Schedule for Conduct of Comprehension Subject		
Total No of weeks planned:10	Total No of subjects: 5 to 7	Total duration per week: 3 periods

Week No	Duration: 1½ period Subject No (No of units)	Duration: 1½ period Subject No (No of units)
W1	S1(3)	S2(3)
W2	S3(3)	S4(3)
W3	S5(3)	S6(3)
W4	Test-I (Portion: 3 units in each subject)	
W5	S1(2)	S2(2)
W6	S3(2)	S4(2)
W7	S5(2)	S6(2)
W8	Test-II (Portion: 2 units in each subject)	
W9	Discussion	
W10	Test-III (All 5 units and all the subjects)	

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<tr><td>07210511P</td><td>CAREER COMPETENCY DEVELOPMENT III</td><td>0</td><td>0</td><td>2</td><td>0</td><td>100</td><td>00</td><td>100</td></tr>
<tr><td>Objective(s)</td><td colspan="7">i. To improve the skill level of Engineering, Technology and Applied Science students.
ii. To improve the employability of students in placement interviews</td></tr>
<tr><td>Skills sets to be improved

Focus</td><td colspan="7">a. Aptitude skills
• Arithmetic ability
• Verbal Reasoning
• Non verbal Reasoning
b. Programming skills
• C language (All Branches)
• OOPS concepts and C++ (Circuit Branches - EEE, ECE,CSE,IT and BT)
• Data Structures (Circuit Branches - EEE,ECE,CSE,IT and BT))
c. Written Communication Skills
• Comprehension
• Grammar
• Essay Writing
• Technical Report Writing
• Technical paper Writing
d. Oral Communication Skills
• News Reading
• Informing a News item
• Self introduction
• 2 minutes talk – Informed
• 2 minutes talk - Extempore
e. Technical Paper Presentation
• Presenting a paper on recent topics
f. Group Interaction
• Debate
• Group Discussion – Informed Topic
• Group Discussion – Topic on the spot
g. Technical Interview Skills
• Basic MPC knowledge
• Broad Knowledge of the branch
• Indepth knowledge on specific subjects of interest
h. HR Interview Skills
• Adoptability
• Creativity
• Flexibility
• Achievement orientation
• Continuous learning
• Hardworking nature
• Decisiveness
• Self development
• Questioning

The focus of CCD is to develop these in three semesters (CCD-I, II and III) and reinforce them in another two semesters (CCD IV and V).</td></tr>
<tr><td>Execution</td><td colspan="7">• Total No. of weeks : 12
• 3 Hrs/week and 2 credits
• Only Continuous Assessment and No End Semester examination.
• Evaluation based on written test, oral test and technical paper presentation.</td></tr>
</table>

	• Every 20 students should be engaged by a staff member during communication hour and oral test • Every 30 students should be monitored by a staff member to conduct written test.	
Schedule	Week	Activity
	1	Training
	2	Training
	3	Evaluation I - Written
	4	Evaluation I - Oral
	5	Training
	6	Evaluation II - Written
	7	Evaluation II - Oral
	8	Training
	9	Evaluation III - Written
	10 - 12	Evaluation III - Oral
Evaluation	Evaluation I	60 marks(average of 3 tests)
	Evaluation II	20 marks
	Evaluation III	20 marks
	Total	100 marks

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Information Technology</td></tr>
<tr><td colspan="9">Semester VI</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">07210601S</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>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">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>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">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>Total hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">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>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">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>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">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 colspan="2">45</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">Govindarajan M, Natarajan S, Senthil Kumar V.S, “Engineering Ethics”, Prentice Hall of India (P) Ltd, New Delhi, 2005.</td></tr>
<tr><td colspan="9">References:</td></tr>
<tr><td>1</td><td colspan="8">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="8">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 2007
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
07210602S	NUMERICAL METHODS	3	1	0	4	50	50	100
Aim	This course gives a complete procedure for solving different kinds of problems occur in engineering numerically.							
Objective(s)	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.							

1	SOLUTION OF EQUATIONS AND EIGENVALUE PROBLEMS	Total Hrs	9+3
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 – Eigenvalue of a matrix by power method.			
2	INTERPOLATION AND APPROXIMATION	Total Hrs	9+3
Lagrangian Polynomials – Divided differences – Interpolating with a cubic spline – Newton's forward and backward difference formulas.			
3	NUMERICAL DIFFERENTIATION AND INTEGRATION	Total Hrs	9+3
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.			
4	INITIAL VALUE PROBLEMS FOR ORDINARY DIFFERENTIAL EQUATIONS	Total Hrs	9+3
Single step methods: Taylor series method – Euler and modified Euler methods – Fourth order Runge – Kutta method for solving first other equations – Multistep methods: Milne's and Adam's predictor and corrector methods.			
5	BOUNDARY VALUE PROBLEMS IN ORDINARY AND PARTIAL DIFFERENTIAL EQUATIONS	Total Hrs	9+3
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.			
Total hours to be taught			60
Text book :			
1	Kandasamy, P., Thilagavathy, K. and Gunavathy, K., "Numerical Methods", S.Chand Co. Ltd., New Delhi, 2003.		
Reference (s) :			
1	Gerald, C.F, and Wheatley, P.O, "Applied Numerical Analysis", Sixth Edition, Pearson Education Asia, New Delhi, 2002.		
2	Burden, R.L and Faires, T.D., "Numerical Analysis", Seventh Edition, Thomson Asia Pvt. Ltd., Singapore, 2002.		

<table>
<tr><td colspan="7">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2007</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 VI</td></tr>
<tr><td rowspan="2">Course Code</td><td rowspan="2" colspan="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>07210603C</td><td colspan="2">TCP/IP AND SOCKET 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>Aim</td><td colspan="7">To understand the protocols of TCP/IP protocol suite, understand the concepts of elementary sockets and socket programming applications.</td></tr>
<tr><td>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="4">INTERNET PROTOCOLS</td><td colspan="2">Total Hrs</td><td colspan="2">12+3</td></tr>
<tr><td colspan="8">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="4">TRANSMISSION CONTROL PROTOCOL</td><td colspan="2">Total Hrs</td><td colspan="2">8+3</td></tr>
<tr><td colspan="8">User Datagram Protocol – Transmission Control Protocol – Stream Control Transmission Protocol.</td></tr>
<tr><td>3</td><td colspan="4">ROUTING AND APPLICATION LAYER PROTOCOLS</td><td colspan="2">Total Hrs</td><td colspan="2">9+3</td></tr>
<tr><td colspan="8">Unicast Routing Protocols – RIP, OSPF and BGP – Host Configuration – BOOTP, DHCP – Domain Name System.</td></tr>
<tr><td>4</td><td colspan="4">ELEMENTARY SOCKETS</td><td colspan="2">Total Hrs</td><td colspan="2">8+3</td></tr>
<tr><td colspan="8">Sockets Introduction – Socket Address Structure – Elementary TCP Sockets – Sending and Receiving – Socket Options.</td></tr>
<tr><td>5</td><td colspan="4">SOCKET PROGRAMMING APPLICATIONS</td><td colspan="2">Total Hrs</td><td colspan="2">8+3</td></tr>
<tr><td colspan="8">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="6">Total hours to be taught</td><td colspan="2">60</td></tr>
<tr><td colspan="8">Text book :</td></tr>
<tr><td>1</td><td colspan="7">Behrouz A. Forouzan, “TCP/IP Protocol Suite”, Third Edition, Tata McGraw Hill, New Delhi, 2007.</td></tr>
<tr><td colspan="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">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="7">Richard Stevens.w, “Unix Network Programming”, Third Edition, Prentice Hall, New Delhi, 2003.</td></tr>
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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>
<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">07210604C</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">Aim</td><td colspan="7">To make the students to understand the windows programming concepts including Microsoft Foundation Classes.</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="3">9</td></tr>
<tr><td colspan="9">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="3">9</td></tr>
<tr><td colspan="9">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="3">9</td></tr>
<tr><td colspan="9">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="3">9</td></tr>
<tr><td colspan="9">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="3">9</td></tr>
<tr><td colspan="9">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 Visual C++”, Microsoft press, 2004 (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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K.S.Rangasamy College of Technology - Autonomous Regulation									R 2007
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	
07210605C	WEB TECHNOLOGY	3	1	0	4	50	50	100	
Aim	To highlight the features of different technologies involved in Web Technology and various Scripting Languages.								
Objective(s)	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.								
1	INTRODUCTION					Total Hrs		9	
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.									
2	DYNAMIC HTML					Total Hrs		9	
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.									
3	MULTIMEDIA					Total Hrs		9	
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.									
4	DATABASE- ASP – XML					Total Hrs		9	
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.									
5	SERVLETS AND JSP					Total Hrs		9	
Introduction – Servlet Overview Architecture – Handling HTTP Request – Get and post request – redirecting request – multi-tier applications – JSP – Overview – Objects – scripting – Standard Actions – Directives.									
Practical								10	
Tutorial hours								5	
Total hours to be taught								60	
Text book :									
1	Deitel & Deitel, Goldberg, “Internet and world wide web – How to Program”, 4th ed., Pearson Education Asia, 2001.								
Reference (s) :									
1	Aferganatel, “Web Programming: Desktop Management”, PHI, 2004.								
2	Rajkamal, “Web Technology”, Tata McGraw-Hill, 2001.								

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Semester VI								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
07210607P	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.

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Semester VI								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
07210608P	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.

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Semester VI								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
07210609P	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 benefit analysis.
4. Time line of activities.
5. Design Concepts.
6. Implementation (Hardware / Software / both).
7. Testing & Validation of the developed system.

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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
07210610P	COMPREHENSION V	0	0	3	0	100	00	100
Objective(s)	i. To improve the skill level of Engineering, Technology and Applied Science students. ii. To improve the employability of students in placement interviews.							
1	For each subject 200 Keywords/important words or terms (5 units x 40 words) are to be prepared using the students.							
2	These 200 Keywords are to be printed in double column (2 x 50 words) and in 2 pages and is to be handled over each student for all the subjects.							
3	The staff who handled the subject in the previous semester will handle their discussion period (3 periods / semester) as given below.							
4	The staff will 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.							
6	Each test will carry 100 questions and two hours duration. The questions will be of objective type: 'W' and 'H' type questions by attaching with keywords.							
7	Based on Test-I and Test-II, sessional marks (maximum 50 marks) will be awarded.							
8	Test-III will be held for all the units and all the subjects. The passing norms will be similar as other subjects (i.e. minimum 50/100 marks)							

Schedule for Conduct of Comprehension Subject		
Total No of weeks planned:10	Total No of subjects: 5 to 7	Total duration per week: 3 periods

Week No	Duration: 1½ period Subject No (No of units)	Duration: 1½ period Subject No (No of units)
W1	S1(3)	S2(3)
W2	S3(3)	S4(3)
W3	S5(3)	S6(3)
W4	Test-I (Portion: 3 units in each subject)	
W5	S1(2)	S2(2)
W6	S3(2)	S4(2)
W7	S5(2)	S6(2)
W8	Test-II (Portion: 2 units in each subject)	
W9	Discussion	
W10	Test-III (All 5 units and all the subjects)	

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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>07210611P</td><td>CAREER COMPETENCY DEVELOPMENT IV</td><td>0</td><td>0</td><td>2</td><td>0</td><td>100</td><td>00</td><td>100</td></tr>
<tr><td>Objective(s)</td><td colspan="8">i. To improve the skill level of Engineering, Technology and Applied Science students.
ii. To improve the employability of students in placement interviews</td></tr>
<tr><td>Skills sets to be improved

Focus</td><td colspan="8">a. Aptitude skills
• Arithmetic ability
• Verbal Reasoning
• Non verbal Reasoning
b. Programming skills
• C language (All Branches)
• OOPS concepts and C++ (Circuit Branches - EEE, ECE,CSE,IT and BT)
• Data Structures (Circuit Branches - EEE,ECE,CSE,IT and BT))
c. Written Communication Skills
• Comprehension
• Grammar
• Essay Writing
• Technical Report Writing
• Technical paper Writing
d. Oral Communication Skills
• News Reading
• Informing a News item
• Self introduction
• 2 minutes talk – Informed
• 2 minutes talk - Extempore
e. Technical Paper Presentation
• Presenting a paper on recent topics
f. Group Interaction
• Debate
• Group Discussion – Informed Topic
• Group Discussion – Topic on the spot
g. Technical Interview Skills
• Basic MPC knowledge
• Broad Knowledge of the branch
• Indepth knowledge on specific subjects of interest
h. HR Interview Skills
• Adoptability
• Creativity
• Flexibility
• Achievement orientation
• Continuous learning
• Hardworking nature
• Decisiveness
• Self development
• Questioning

The focus of CCD is to develop these in three semesters (CCD-I, II and III) and reinforce them in another two semesters (CCD IV and V).</td></tr>
<tr><td>Execution</td><td colspan="8">• Total No. of weeks : 12
• 3 Hrs/week and 2 credits
• Only Continuous Assessment and No End Semester examination.
• Evaluation based on written test, oral test and technical paper presentation.</td></tr>
</table>

	• Every 20 students should be engaged by a staff member during communication hour and oral test • Every 30 students should be monitored by a staff member to conduct written test.	
Schedule	Week	Activity
	1	Training
	2	Training
	3	Evaluation I - Written
	4	Evaluation I - Oral
	5	Training
	6	Evaluation II - Written
	7	Evaluation II - Oral
	8	Training
	9	Evaluation III - Written
	10 - 12	Evaluation III - Oral
Evaluation	Evaluation I	60 marks(average of 3 tests)
	Evaluation II	20 marks
	Evaluation III	20 marks
	Total	100 marks

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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
07210701G	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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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	
07210702C	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 – ActiveX 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								

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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
07210703C	MOBILE COMPUTING	3	1	0	4	50	50	100
Objective(s)	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.							
1	WIRELESS COMMUNICATION FUNDAMENTALS				Total Hrs	9		
Introduction – Wireless transmission – Frequencies for radio transmission – Signals – Antennas – Signal Propagation – Multiplexing – Modulations – Spread spectrum – MAC – SDMA – FDMA – TDMA – CDMA – Cellular Wireless Networks.								
2	TELECOMMUNICATION NETWORKS				Total Hrs	11		
Telecommunication systems – GSM – GPRS – DECT – UMTS – IMT-2000 – Satellite Networks - Basics – Parameters and Configurations – Capacity Allocation – FAMA and DAMA – Broadcast Systems – DAB - DVB.								
3	WIRLESS LAN				Total Hrs	9		
Wireless LAN – IEEE 802.11 - Architecture – services – MAC – Physical layer – IEEE 802.11a - 802.11b standards – HIPERLAN – Blue Tooth.								
4	MOBILE NETWORK LAYER				Total Hrs	9		
Mobile IP – Dynamic Host Configuration Protocol - Routing – DSDV – DSR – Alternative Metrics.								
5	TRANSPORT AND APPLICATION LAYERS				Total Hrs	7		
Traditional TCP – Classical TCP improvements – WAP, WAP 2.0.								
Total hours to be taught						45		
Text book (s) :								
1	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).							
2	William Stallings, “Wireless Communications and Networks”, PHI/Pearson Education, 2002. (Unit I Chapter – 7&10-Unit II Chap 9)							
Reference (s) :								
1	Kaveh Pahlavan, Prasanth Krishnamoorthy, “Principles of Wireless Networks”, PHI/Pearson Education, 2003							
2	Uwe Hansmann, Lothar Merk, Martin S. Nicklons and Thomas Stober, “Principles of Mobile Computing”, Springer, New York, 2003.							
3	Hazysztof Wesolowshi, “Mobile Communication Systems”, John Wiley and Sons Ltd, 2002.							

<table>
<tr><td colspan="8">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2007</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 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">07210704C</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="7">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="5">OUTPUT PRIMITIVES</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">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="5">THREE-DIMENSIONAL CONCEPTS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">Three-Dimensional Object Representations – Three-Dimensional Geometric and Modeling Transformations – Color models – Computer Animation</td></tr>
<tr><td>3</td><td colspan="5">MULTIMEDIA SYSTEMS DESIGN</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">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="5">MULTIMEDIA FILE HANDLING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">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="5">MULTIMEDIA AUTHORING AND HYPERMEDIA MESSAGING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">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 colspan="2">45</td></tr>
<tr><td colspan="9">Text book (s) :</td></tr>
<tr><td>1</td><td colspan="8">Donald Hearn and M.Pauline Baker, “Computer Graphics C Version”, Pearson Education, 2003.</td></tr>
<tr><td>2</td><td colspan="8">Prabat K Andleigh and Kiran Thakrar, “Multimedia Systems and Design”, PHI, 2003.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Judith Jeffcoate, “Multimedia in practice technology and Applications”, PHI, 1998.</td></tr>
<tr><td>2</td><td colspan="8">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 2007
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
07210707P	SOFTWARE COMPONENTS LABORATORY	0	0	3	2	50	50	100

LIST OF EXPERIMENTS

1. Creating banner using ActiveX Control.
2. Number conversion using COM / DCOM (ActiveX DLL).
3. Spell checking application using COM / DCOM (ActiveX EXE).
4. Application to deploy a Multimedia File.
5. Addition of two numbers using RMI.
6. Transmitting files using RMI.
7. Implementation of Java Beans.
8. Calculator using EJB.
9. CORBA – Time display distributed application.
10. Study of J2EE Server.

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		L	T	P	C	CA	ES	Total
07210708P	GRAPHICS AND MULTIMEDIA LABORATORY	0	0	3	2	50	50	100

LIST OF EXPERIMENTS

1. To implement DDA and Bresenham's line drawing algorithms for line.
2. To implement Mid-point circle and ellipse generation algorithms.
3. To perform 2D Transformations such as translation, rotation, scaling, reflection and sharing.
4. To implement Cohen-Sutherland 2D clipping
5. To perform 3D Transformations such as translation, rotation and scaling.
6. To visualize projections of 3D images.
7. To convert between color models.
8. To implement text compression algorithm.
9. To implement image compression algorithm.
10. To perform animation using any Animation software
11. To perform basic operations on image using any image editing software

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		L	T	P	C	CA	ES	Total	
07210710P	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.

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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
07210641E	COMPILER DESIGN	3	0	0	3	50	50	100
Aim	At the end of the course the student will be able to design and implement a simple compiler.							
Objective(s)	To understand, design and implement a lexical analyzer, understand, design and implement a parser, understand optimization of codes and runtime environment.							
1	INTRODUCTION TO COMPILERS				Total Hrs	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.								
2	SYNTAX ANALYSIS				Total Hrs	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.								
3	INTERMEDIATE CODE GENERATION				Total Hrs	9		
Intermediate languages – Declarations – Assignment Statements – Boolean Expressions – Case Statements – Back patching – Procedure calls.								
4	CODE GENERATION				Total Hrs	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.								
5	CODE OPTIMIZATION AND RUN TIME ENVIRONMENTS				Total Hrs	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.								
Total hours to be taught						45		
Text book :								
1	Alfred Aho, Ravi Sethi, Jeffrey D Ullman, “Compilers Principles, Techniques and Tools”, Pearson Education Asia, 2003.							
Reference (s) :								
1	Allen I. Holub “Compiler Design in C”, Prentice Hall of India, 2003.							
2	C. N. Fischer and R. J. LeBlanc, “Crafting a compiler with C”, Benjamin Cummings, 2003.							
3	J.P. Bennet, “Introduction to Compiler Techniques”, Second Edition, Tata McGraw-Hill, 2003.							
4	Henk Alblas and Albert Nymeyer, “Practice and Principles of Compiler Building with C”, PHI, 2001.							
5	Kenneth C. Louden, “Compiler Construction: Principles and Practice”, Thompson Learning, 2003.							

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Semester VI								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
07210642E	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 2007
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Semester VI								
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		L	T	P	C	CA	ES	Total
07210643E	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">07210644E</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">INTRODUTION</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="9">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="9">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="9">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="9">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="9">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>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">07210645E</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>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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
07210646E	ADVANCED JAVA PROGRAMMING	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	JAVA FUNDAMENTALS				Total Hrs	9		
Java I/O streaming – filter and pipe streams – Byte code interpretation - reflection – Dynamic Reflexive Classes – Threading – Java Native Interfaces- Swing.								
2	NETWORK PROGRAMMING IN JAVA				Total Hrs	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.								
3	APPLICATIONS IN DISTRIBUTED ENVIRONMENT				Total Hrs	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.								
4	MULTI-TIER APPLICATION DEVELOPMENT				Total Hrs	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.								
5	ENTERPRISE APPLICATIONS				Total Hrs	9		
Server side component architecture – introduction to J2EE – session beans – entity beans – Persistent entity beans – Transactions.								
Total hours to be taught						45		
Text book (s) :								
1	Elliotte Rusty Harold, " Java Network Programming", O'Reilly publishers, 2000 (UNIT II)							
2	Ed Roman, "Mastering Enterprise Java Beans", John Wiley & Sons Inc., 1999. (UNIT III and UNIT V)							
3	Hortsmann & Cornell, "CORE JAVA 2 ADVANCED FEATURES, VOL II", Pearson Education, 2002. (UNIT I and UNIT IV).							
Reference (s) :								
1	Web reference: http://java.sun.com.							
2	Patrick Naughton, "COMPLETE REFERENCE: JAVA2", Tata McGraw-Hill, 2003.							

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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
07210751E	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 Surival Guide”, Second edition, John Wiley & Sons, Singapore, 2003.		
2	James E.Goldman, Phillip T.Rawles, Julie R.Mariga,” Client / Sever 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		

<table>
<tr><td colspan="8">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2007</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">07210752E</td><td colspan="2">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 colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">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 colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">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 colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">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 colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Distributed file systems Distributed file system desing – implementation – file models – fault tolerance - file replication –multimedia.</td></tr>
<tr><td>5</td><td colspan="5">Distributed Processing</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">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>45</td></tr>
<tr><td colspan="8">Text book :</td></tr>
<tr><td>1</td><td colspan="7">Andrew S.Tanenbaum,”Distributed Operating Systems”, Pearson Education Asia, 2001.</td></tr>
<tr><td colspan="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">Mukesh singhal and niranjan G.Shivaratri, “Advanced concepts in Operating system, Tata McGraw Hill.</td></tr>
<tr><td>2</td><td colspan="7">Pradeep.k and Sinha,” Distributed operating systems,PHI, Newdelhi, 2001</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>
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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>
<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">07210753E</td><td colspan="2">GRID 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 grid computing. To know the application of grid computing.
To understanding the technology and tool kits to facilitated the grid computing.</td></tr>
<tr><td>1</td><td colspan="5">GRID COMPUTING</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Introduction - Definition - Scope of grid computing</td></tr>
<tr><td>2</td><td colspan="5">GRID COMPUTING INITIATIVES</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Grid Computing Organizations and their roles – Grid Computing anatomy – Grid Computing road map.</td></tr>
<tr><td>3</td><td colspan="5">GRID COMPUTING APPLICATIONS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Merging the Grid sources – Architecture with the Web Devices Architecture.</td></tr>
<tr><td>4</td><td colspan="5">TECHNOLOGIES</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">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</td></tr>
<tr><td>5</td><td colspan="5">GRID COMPUTING TOOL KITS</td><td colspan="2">Total Hrs</td><td>9</td></tr>
<tr><td colspan="8">Globus Toolkit – Architecture, Programming model, High level services</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">Joshy Joseph & Craig Fellenstein, “Grid Computing”, PHI, PTR-2003.</td></tr>
<tr><td colspan="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">Ahmar Abbas, “Grid Computing: A Practical Guide to technology and Applications”, Charles River media – 2003.</td></tr>
<tr><td>2</td><td colspan="7">D.Janakiram, ”Grid Computing”: A Research Monograph, Tata McGraw-Hill,2005</td></tr>
</table>

K.S.Rangasamy College of Technology - Autonomous Regulation									R 2007
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
07210754E	HIGH PERFORMANCE NETWORKS	3	0	0		3	50	50	100
Objective(s)	To understand the concept of High Performance networks. To know the application of High Performance networks. To understanding the technology and tool kits to facilitated the High Performance networks.								
1	INTRODUCTION					Total Hrs		9	
Communication networks, network principles, applications, QoS, (network and application), Traffic characterization, network services, elements, mechanisms.									
2	BROADBAND ISDN					Total Hrs		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.									
3	WIRELESS NETWORK					Total Hrs		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.									
4	OPTICAL NETWORKS					Total Hrs		9	
Optical links, WDM systems, optical cross connects, optical LANS, optical paths and networks									
5	PERFORMANCE MEASURES					Total Hrs		9	
ATM networks – cell transfer delay, cell delay variation, cell loss ratio, buffer over flow probability; wireless network – QoS parameters.									
Total hours to be taught								45	
Text book (s) :									
1	Jean Walrand and Pravin Varaiya, “High Performance Communication networks”, HARCOURT Asia PTE Ltd., 2nd edition, 2001. Chapters 1, 2, 11.								
2	Stallings, “ISDN and broadband ISDN with frame relay and ATM”, Pearson Education Asia, Fourth Edition, 2001. Chapters 14, 16, 17, Appendix A.								
3	Kaveh Pahlavan, Prashant Krishnamurthy, “Principles of Wireless Networks”, Pearson Education Asia, First Edition, 2002, Chapters 10, 11, 12, 13.								
Reference (s) :									
1	Walter Goralski, “Optical Networking and WDM”, Tata McGraw-Hill, 2001.								
2	Neelakanta P.S., “A textbook on ATM Telecommunication Principles and Implementation”, CRC Press, First edition; 2000.								
3	John A. Vacca, “Wireless Broadband Networks Handbook”, Tata McGraw- Hill, 2001.								
4	Tom Sheldon, “Encyclopedia of Networking and Telecommunication”, Tata McGraw-Hill, 2001.								

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<tr><td colspan="2">07210761E</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 grid 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="8">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="8">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="8">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="8">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="8">Scaling a Cloud Infrastructure - Capacity Planning - Cloud Scale - Types of Clouds - Comparing Approaches</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">George Reese, “Cloud Application Architectures Building Applications and Infrastructure in the Cloud”, O’Reilly, 2009</td></tr>
<tr><td colspan="8">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="7">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 2007
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
07210762E	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, Decision making and Branching, decision making and 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 :

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.

<table>
<tr><td colspan="7">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2007</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">07210763E</td><td>CYBER LAWS AND INTELLECTUAL PROPERTY RIGHTS</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 enable learners to understand the cyber laws and intellectual property rights To Know the IP Trademarks and Agreement</td></tr>
<tr><td>1</td><td colspan="5">POWER OF ARREST WITHOUT WARRANT UNDER THE IT ACT 2000: A CRITIQUE</td><td>Total Hrs</td><td colspan="2">8</td></tr>
<tr><td colspan="9">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.</td></tr>
<tr><td>2</td><td colspan="5">CYBER CRIME AND CRIMINAL JUSTICE</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="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.</td></tr>
<tr><td>3</td><td colspan="5">INTELLECTUAL PROPERTY RIGHTS</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="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). .</td></tr>
<tr><td>4</td><td colspan="5">IP TRADE MARKS AND APPLICATIONS</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="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.</td></tr>
<tr><td>5</td><td colspan="5">WIPO AND GATT</td><td>Total Hrs</td><td colspan="2">10</td></tr>
<tr><td colspan="9">International convention relating to Intellectual Property – Establishment of WIPO – Mission and Activities – History – General Agreement on Trade and Tariff (GATT).</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">Vivek Sood. “Cyber Law Simplified”-Tata McGraw-Hill Publishing, Second Edition 2003.</td></tr>
<tr><td>2</td><td colspan="8">Subbaram N.R. “Handbook of Indian Patent Law and Practice “, S. Viswanathan (Printers and Publishers) Pvt. Ltd., 1998.</td></tr>
<tr><td colspan="9">Reference :</td></tr>
<tr><td>1</td><td colspan="8">Susan K. Sell , “The Globalization of Intellectual Property Rights” , Kindle Edition - Jun 23, 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 colspan="2">07210764E</td><td>3G WIRELESS 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 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..</td></tr>
<tr><td>1</td><td colspan="5">3G WIRELESS COMMUNICATION FUNDAMENTALS</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="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.</td></tr>
<tr><td>2</td><td colspan="5">CHANNEL CODING</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="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.</td></tr>
<tr><td>3</td><td colspan="5">TELECOMMUNICATION NETWORKS</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="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.</td></tr>
<tr><td>4</td><td colspan="5">3G PROCEDURES</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="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</td></tr>
<tr><td>5</td><td colspan="5">3G SERVICES</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="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</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">Juha Korhonen, “Introduction to 3G Mobile Communications”, Second Edition, Artech House, 2003</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Daniel Collins, Clint Smith, “3G Wireless Networks”, McGraw – Hill , 2001</td></tr>
<tr><td>2</td><td colspan="8">Roman Kitka, Richard Levine, Lawrence J.HJarte, “3G Wireless Demystified” McGraw – Hill 2001.</td></tr>
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<tr><td colspan="8">K.S.Rangasamy College of Technology - Autonomous Regulation</td><td>R 2007</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 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">07210871E</td><td>INFORMATION SYSTEM 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 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.</td></tr>
<tr><td>1</td><td colspan="5">MANAGING THE DIGITAL FIRM</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="8">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.</td></tr>
<tr><td>2</td><td colspan="5">DESIGNING INFORMATION SYSTEMS</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="8">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</td></tr>
<tr><td>3</td><td colspan="5">DEVELOPMENT AND MAINTENANCE OF INFORMATION SYSTEMS</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="8">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.</td></tr>
<tr><td>4</td><td colspan="5">KNOWLEDGE MANAGEMENT, ETHICS AND SECURITY</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="8">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.</td></tr>
<tr><td>5</td><td colspan="5">INFORMATION ARCHITECTURE</td><td>Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="8">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.</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">Lauaon Kenneth & Landon Jane, "Management Information Systems: Managing the Digital firm", Eighth edition, PHI, 2004.</td></tr>
<tr><td>2</td><td colspan="8">Uma G. Gupta, "Management Information Systems – A Management Prespective", Galgotia publications Pvt., Ltd., 1998.</td></tr>
<tr><td>3</td><td colspan="8">Louis Rosenfel and Peter Morville, "Information Architecture for the World wide Web", O'Reilly Associates, 2002.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">Steven Alter, "Information Systems – A Management Perspective", Pearson Education, 2001.</td></tr>
<tr><td>2</td><td colspan="8">Uma Gupta, "Information Systems – Success in 21st Century", Prentice Hall of India, 2000.</td></tr>
<tr><td>3</td><td colspan="8">Robert G. Murdick, Joel E. Ross and James R. Claggett, "Information Systems for Modern Management", PHI, 1994.</td></tr>
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<tr><td colspan="2">07210872E</td><td colspan="2">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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K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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
07210873E	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" rowspan="2">Course Code</td><td 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">07210874E</td><td>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="4">DIGITAL IMAGE FUNDAMENTALS AND TRANSFORMS</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">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="4">IMAGE ENHANCEMENT TECHNIQUES</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">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="4">IMAGE RESTORATION</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">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="4">IMAGE COMPRESSION</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">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="4">IMAGE SEGMENTATION AND REPRESENTATION</td><td colspan="2">Total Hrs</td><td colspan="2">9</td></tr>
<tr><td colspan="9">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 colspan="2">45</td></tr>
<tr><td colspan="9">Text book :</td></tr>
<tr><td>1</td><td colspan="8">Rafael C Gonzalez and Richard E Woods, “Digital Image Processing”, third edition, Pearson Education, 2007.</td></tr>
<tr><td colspan="9">Reference (s) :</td></tr>
<tr><td>1</td><td colspan="8">William K Pratt,” Digital Image Processing”, John Wiley & Sons, New york, 2004.</td></tr>
<tr><td>2</td><td colspan="8">Anil K.Jain,”Fundamentals of Digital Image Processing”, Prentice Hall, Newdelhi, 1995.</td></tr>
<tr><td>3</td><td colspan="8">Chanda Dutta Magundar,” Digital Image Processing and Applications”, Prentice Hall of India, 2000.</td></tr>
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Department	Information Technology	Programme Code & Name			21: B.Tech. Information Technology			
Semester VII								
Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
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07210881E	DATA WAREHOUSING AND MINING	3	0	0	3	50	50	100
Objective(s)	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.							
1	INTRODUCTION AND DATA WAREHOUSING				Total Hrs	9		
Introduction, Data Warehouse, Multidimensional Data Model, Data Warehouse Architecture, Implementation, Data Warehousing to Data Mining.								
2	DATA PREPROCESSING, CONCEPT DESCRIPTION				Total Hrs	9		
Why Preprocessing, Cleaning, Integration, Transformation, Reduction, Discretization, Concept Hierarchy Generation, Concept Description, Data Generalization, Characterizations, Class Comparisons, Descriptive Statistical Measures.								
3	ASSOCIATION RULES				Total Hrs	9		
Association Rule Mining, Single-Dimensional Boolean Association Rules from Transactional Databases, Multi-Level Association Rules from Transaction Databases.								
4	CLASSIFICATION AND CLUSTERING				Total Hrs	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.								
5	RECENT TRENDS				Total Hrs	9		
Spatial Databases, Multimedia Databases, Text Databases, World Wide Web, Applications and Trends in Data Mining.								
Total hours to be taught						45		
Text book :								
1	J. Han, M. Kamber, “Data Mining: Concepts and Techniques”, Harcourt India / Morgan Kauffman, 2001.							
Reference (s) :								
1	Margaret H.Dunham, “Data Mining: Introductory and Advanced Topics”, Pearson Education 2004.							
2	Sam Anahory, Dennis Murry, “Data Warehousing in the real world”, Pearson Education 2003.							
3	David Hand, Heikki Manila, Padhraic Symth, “Principles of Data Mining”, PHI 2004.							
4	W.H.Inmon, “Building the Data Warehouse”, 3rd Edition, Wiley, 2003.							
5	Alex Bezon, Stephen J.Smith, “Data Warehousing, Data Mining & OLAP”, MeGraw-Hill Edition, 2001.							
6	Paulraj Ponniah, “Data Warehousing Fundamentals”, Wiley-Interscience Publication, 2003.							

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Course Code	Course Name	Hours / Week			Credit	Maximum Marks		
		L	T	P	C	CA	ES	Total
07210882E	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 (s) :

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 McGrawHill Publications, 2008
3	Efraim Turban et al, Electronic Commerce –A managerial perspective, Pearson Education Asia, 2006

K.S.Rangasamy College of Technology - Autonomous Regulation								R 2007
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07210883E	OPEN SOURCE ARCHITECTURE	3	0	0	3	50	50	100
Objective(s)	The main objective is to allow students to address issues and adapt Open Source Technologies and Practices							

1	OVERVIEW OF OPEN SOURCE SOFTWARE	Total Hrs	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.			
2	OPEN SOURCE SOFTWARE QUALIFICATION AND TRANSFORMATION	Total Hrs	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.			
3	OSS ENVIRONMENT	Total Hrs	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.			
4	APPLICATION ARCHITECTURE AND HOW OPEN SOURCE SOFTWARE IS DEVELOPED	Total Hrs	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.			
5	OPEN SOURCE SERVER APPLICATIONS	Total Hrs	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.			
Total hours to be taught			45
Text book (s) :			
1	Understanding Open Source Software Development by Joseph Feller, Brian Fitzgerald, Eric S. Raymond, Addison-Wesley Professional; 1st edition (December 31, 2001)		
2	Open Source Software: Implementation and Management, by Paul Kavanagh, Digital Press (July 26, 2004),2004 [Chapters 3, 7, 8, 9, 10, 11,12,13]		
Reference (s) :			
1	The Success of Open Source by Steven Weber , Harvard University Press (April 30, 2004)		
2	Succeeding with Open Source by Bernard Golden, Addison-Wesley Professional (August 10, 2004)		

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<tr><td colspan="2">07210884E</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, “Fuzzylogic 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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