2013-14

Minutes 9th BOS Meeting of Computer Science and Engineering, K L University

The 9th meeting of the BOS-CSE has been conducted on June 20, 2013 at 1 :00 PM in the Computer Science and Engineering department, K L University.

The following members are present

Serial Number	Name	Designation	Institutions	Signature
1	Dr. D.V.L.N Somayajulu	Professor	NIT Warangal	
2	Sri Muni Reddy	Senior Manager	IBM software Labs,Banglore	
3	Dr.G.Rama Krishna	Professor	K L University	
4	Dr. K Rajasekhara Rao	Professor	K L University	
5	Dr. V Srikanth	Professor	K L University	
6	Dr.V.Chandra Prakash	Professor	K L University	
7	Dr.J.K.R.Sastry	Professor	K L University	
8	Dr.T.V.Rao	Professor	K L University	
9	Prof.S.Venkateswarlu	Professor	K L University	
10	Dr.K.Subramanyam	Professor	K L University	
11	Dr.M.R.Narasinga Rao	Professor	K L University	
12	Dr.M.S.R.Prasad	Professor	K L University	
13	Dr.Rajeswara Rao	Professor	K L University	
14	Dr.K.V.V.Satyanarayana	Professor	K L University	
15	Dr.Khalim Amjed Meerja	Professor	K L University	
16	Dr. S. Satyanarayana	Assoc. Professor	K L University	
16	Dr.Vijaya babu	Professor	K L University	
17	Sri K.Rajasekhar	Associate Professor	K L University	
18	Dr. V Ramakrishna	Associate Professor	K L University	
19	Sri K.V.D Kiran	Assistant Professor	K L University	

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The following Agenda Items are discussed and the resolutions passed are marked against them.

S.No	Agenda Item	Resolution
1	Confirmation of previous minutes of meeting (DAC minutes 9/6/13)	Confirmed
2	Approval of Syllabus for 7th and 8th semester of B.Tech(CSE) 2010-2014	Approved
3	Approval of syllabus for 5th ,6th , 7th and 8th semester of B.Tech of CSE, 2011-2015 and 2012-2016	Approved
4	Approval of structure and syllabus of B.Tech CSE 2013-2017 (Annexure I)	Approved

Consequent to these resolutions, the necessary changes shall be carried out in the course structure and framework and the same will be circulated within a week.

Dr. V.Srikanth

Chairman BOS CSE

Minutes of the meeting between IIIT and KLU at Hyderabad on 17th June 2013

Members preset

IIIT	KLU
Prof. G. Rama Murthy	Dr. V. Srikanth
	Sh. N. Venkatram

1. KLU's B. Tech CSE Syllabus was discussed. IIIT indicated that the syllabus is almost in line with the current requirements of Software Industry, However , to match the exacting requirements they suggested that the following topics be included in the Syllabus.

PROFESSIONAL CORE

I. NETWORKING

1.1 Functional Approach (vs) Layering Approach covering the following areas
   a. Multiplexing,
   b. Switching,
   c. Routing
1.2 Cross Layer design ideas
1.3 Some queuing theory: performance evaluation
1.4 Multiple access protocols
1.5 Wired network simulation: graph theoretic ideas
1.6 Some network programming with adequate practicals
1.7 Functional Approach, Book: Kurose, NS2 Simulation, Socket Programming, Windows Sockets, Installation of Switch.
1.8 Study of Wired Network Link Security
1.9 Practicals on AP. net, Klu network
1.10 Lan, Wan design implementation including Lan settings etc (trouble shooting)
1.11 Cisco certification CCNA.
1.12 Challenging homework problems
1.13 Windows Sockets
1.14 Page Problem as Home work
1.15 Use of TCP, UDP, Protocol Stack Design, HTTP, FTP.
1.16 In TCP/IP IPV6 details

II. Computer networks and security

Rename the course to (cryptography & security)
Hacking, IP Spoofing, MAC address Spoofing
Building a Firewall, Web Page Sniffing, TC Dump
Secure production systems for Firewall, Antivirus, Hacking, E-Transactions, Mobile Payments
Knapsack Problems, Lattice Based Cryptography BOOK: Forouzon,
Securing Cloud Computing Systems, Reliability Analysis
Motivation of ECC (key Length) ,Miniproject: Implement Small Key Length ECC on a Hand Held Devices
Need to add Twisty Attacks

III. DLD&CO

Basics , Readymade Systems with example, Pipelining, Superscalar Architectures, Design of COMBINATIONAL Circuit, Sequential Circuits, Relational of Design of LOGIC Gates using Multiplexers, Logical Reasoning Skills(How many BOOLEAN Functions are there for a logic circuit which has no of inputs, Building a Half adder, Full Adder, Architectural Features of Multicore Systems,I1,I2 Cache, VHDL

Ananth Kumar Books.

IV. HCI&CG

Building a GUI, Functionality and working of Mouse , Speech Interface, Hand based Testers, Recent Trends of Mouse.

V. OS

Recent Trends in Defining Scheduling Algorithms, Cognitive Scheduling, Threading, virtualization, Virtual Machines, Develop a OS.

Tanenbaum Books.

. DBMS

Audio, Video Databases, Manipulate Objects, Content Based Image Retrieval.

VII. MP&MC

Multicore Systems, Platform Independence, Lab component , sorting Program in ALP, Features of embedded Systems, Use of MP&MC.

VIII. INTERNET PROGRAMMING

Browser, Speech Interface to The Web, Web 2.0, Web 3.0, Web services.

IX. AFL

Multiple Architecture leading to New Ideas in Automation and Turing machines.

SE

Relational Suite ,Software Testing, Developing Software with dynamic operation of it, Experimental Approach, Model Based Approach For Software Testing, Modeling of Software.

XI. DAA

Problems In Real time, Practicals, Complexity of a algorithm, Lower Bounds.

Diameter of a graph, Performance Evaluation of RA, All pairs shortest path

XII. Simulation and Modeling

Discrete Event Simulation, Basic Probability(Random Variable, CDF, PDF, Join & Marginal, Stochastic process, Bernalalli Process, Prinson Process

XIII. AI

Connectionist Models:- Meculloch Pits Model, PESSAYTRANS, Back Process,

Books: Machine Learning By Tom Mitchell (Decision Tree)

XIV. Distributed Computing

Reliability Studies, Fault Tolerant Distributed Computing, Cooperating LANs.

XV. CD

Writing of a Simple Compiler (Page Will Deal ONLY with Matriz) and Cross Compilers

XVI Electives

COMPUTER NETWORK STREAM

In High speed networks the optical networks Books: J.Volrand, P.Variya

WCN

Distinguish Between Infrastructure And Adhoc Networks, MANET, 4G, Next Gen Systems, MIMO, Cooperative Comm (Virtual MIMO)Recent Wireless Technologies(WSN).

WEB TECHNOLOGIES STREAM

Semantic web (Web 2.0, 3.0)

Machine Translation, Semantic Web, Semantics of NL, word-sense disambiguation

INTELLIGENT STREAM

Pattern: Reinforcement, Learning, K-Means Algorithm.

Soft Computing: Self Organizing, Genetic Algorithm, Nature Based Computing, CO.

SECURITY STREAM

Cyber security

PARALLEL & DISTRIBUTED COMPUTING STREAM

Parallel architectures: multicore systems

EMBEDDED SYSTEMS STREAM

Cyber physical systems (eg WSN)

Cyber Physical Systems

2. KLU agreed to review the syllabus as per the above suggestions and revise its syllabus
3. The above suggestions were mailed to Dr. DVLN Somayajulu ,Prof. NIT Warangal and Sh. S. Muni Reddy IBM Labs, Bangalore for their comments

Minutes of 10th BOS Meeting of Computer Science and Engineering, K L University

The 10th meeting of the BOS-CSE has been conducted on November 18th, 2013 at 2.00PM in the Computer Science and Engineering department, K L University.

The following members are present:-

S.No	Name	Designation	Signature
1	Dr.V.Srikanth	BOS-Chairman	
2	Dr.V.Chandra Prakash	Member	
3	Dr.G.Rama Krishna	Member	
4.	Dr.K.Subramanyam	Member	
5.	Dr.T.V.Rao	Member	
6.	Dr.M.R.Narasinga Rao	Member	
7.	Dr.A.Srinivasa Rao	Member	
8.	Dr.K.Thirupathi Rao	Member	
9.	Dr.V.KrishnaReddy	Member	
10.	Dr.B.Thirumala Rao	Member	
11.	Dr.D.Rajeswara Rao	Member	
12.	Dr.B.Vjaya Babu	Member	
13.	Dr.M S R Prasad	Member	
14.	Dr.V.RamaKrishna	Member	
15.	Dr.Khalim Meerja	Member	
16.	Sri.K.Raja Sekhar	Member	

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Minutes of 10th meeting of CSE-BOS on 18-11-13

Agenda Point1 **Project Based Labs.**

Guidelines are formulated and approved

Agenda Point2 **Review of B.Tech and M.Tech Curriculum and Syllabus**

2.1 Approval of previous DAC Minutes (DAC minutes 11/11/13).

2.2 Open Electives.

2.2.1 For 2011 and 2012 batches Introduction to object oriented Programming, Fundamentals of Database Systems and Fundamentals of Software Engineering will be offered as Open electives.

2.2 The Syllabus for Parallel Processing Elective Course has been approved with minor modifications.

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K L University

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Koneru Lakshmaiah Education Foundation

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

MINUTES OF DEPARTMENT ACADEMIC COMMITTEE MEETING

The Department Academic Committee Meeting was conducted in C409, Computer Science and Engineering, on 9th june 2013 at 11.00 AM.

The following Agenda Items are discussed and the resolutions passed are marked against them.

Agenda:

- To discuss feedback obtained from various stake holders.
- To discuss the syllabus and course structure of B.Tech 2013 batch (Annexure-I).

The following members were present:

1. Dr. V.Srikanth
2. Dr. V. CHANDRA PRAKASH.
3. Dr. T. V. Rao.
4. Prof. S. VENKATESWARLU.
5. Dr. K. SUBRAHMANYAM.
6. Dr. M. R. NARASING RAO.
7. Dr. D. RAJESWARA RAO.
8. Dr. M.S.R PRASAD.
9. Dr. K. V. V. SATYANARAYANA
10. Dr. V. RAMA KRISHNA
11. Dr. K. RAJA SEKHAR.
12. Mr. M. VISHNUVARDHAN.
13. Mr. K. V. D. KIRAN.
14. A. Naga Sabarinath (10100416)
15. V. Alakananda (10100242)
16. Himaja (10100325)

The following points were discussed and resolved:

- Upon discussing the feedback from DAC members, resolved to introduce two to three open electives in order to gain more fundamental Knowledge in other department (or) general areas.

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- PO's and PEO's are introduced in Y13 Batch according to Washington Accord or ABET. LTC/Active learning was introduced as per Outcome based education.
- Discussed to change the course name Mathematical methods to Mathematical Methods for Computation in order to standardize the title.
- Engineering Mathematics and Advanced Engineering Mathematics are renamed as Linear algebra and Multivariate Calculus, Differential Equations Respectively, as the course name should be specific.
- Upon discussing the feedback from DAC members, it is resolved to introduce Thermodynamics and Network Theory in Engineering Sciences (AICTE model Curriculum Recommendation).
- As per ACM Computer Engineering model curriculum 2004, it is recommended to include Signal Processing in Engineering Sciences.
- According to ACM knowledge area, it is suggested to change the name of Cryptography and Network Security as Information Assurance security.
- Upon discussion, it is resolved to introduced new course Simulation and Modelling as per the guidelines of ACM Curriculum.
- Upon discussing the feedback from DAC members, in order to enhance Research and Publications, it is resolved to continue the Term Paper as minor project and finally as major project to come up with publications.
- In order to implement LTC effectively, it is suggested to allot three faculty for each core course.
- In order to emphasize more on machine Learning and upcoming Technologies, it is resolved to change Artificial Intelligence from elective to core course.
- It is suggested to add the Graph theory concepts to the Data Structures Course.

All programs for 2013-14 has been framed to be in relevance to APIIC, Human Resource Development Policy, Govt. of India, National Skill Development Corporation, Govt. of India, Confederation of Indian Industries, ABET, NBA norms, O*NET and AICTE statutory norms. Thus, framed curriculum has been developed through framing of Program Educational Objectives (PEO's) which are mapped to the university Vision and Mission, which are there by disseminated into Student Outcomes (SO's) which thereby have been developed into relevant Course Outcomes (CO's).

The resolutions are forwarded to BOS committee, for the approval.

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DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

R13 Annexure (B.Tech)-I

Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs) a	b	C	d	e	f	g	h	i	j	k	PSO 1	PSO 2	Type	Rationale
1	13-HS 101	English	2-0-2	3	1	CO 1	Understand the concept of Group Discussion and listen and speak effectively during the discussion.							1					2		Modified from the previous syllabus	This course helps to gain knowledge on professional communication skills
					2	CO 2	Understand and improve learners' competency in competitive English and apply the principles of grammar in real life contexts.							2					2			
					3	CO 3	Understand skimming & scanning, and apply the types of reasoning in comprehending the information.							3					1			
					4	CO 4	Understand the mechanics and application of presentation skills.						1						2			
2	13-HS-102	Language and Reasoning Skills	2-0-2	3	5	CO 1	Understand the method of identifying synonyms and antonyms and analyze the meaning of a word from the context.									1			1		New Course is Added	This course helps to gain knowledge on professional communication skills
					6	CO 2	Analyze issues and arguments in the process of critical reasoning and apply grammar rules to correct sentences.									1			1			
					7	CO 3	Apply the Concepts of basic Algebra and their importance while solving the problems									1			1			
					8	CO 4	Apply the short-cut methods on the concepts of different models in Calendars, Clocks, Blood relations and various types of arrangements.									1			1			
3	11-BS-105	Ecology & Environme	2-0-0	2	9	CO 1	Understand the importance of Environmental education and conservation of natural resources.								1				1		Modified from the	This cours helps in understanding the
					10	CO 2	Understand the importance of ecosystems and biodiversity.									1			2			nature and respect it

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		nt			11	CO 3	Apply the environmental science knowledge on solid waste management, disaster management and EIA process.								2				1		previous syllabus	nature and respect it and how to save it.
4	13-HS-104	Human Values	2-0-0	2	12	CO1	Understand and identify the basic aspiration of human beings						1						1		New Course is Added	This course helps to interact with other human resources humanly
					13	CO2	Envisage the roadmap to fulfill the basic aspiration of human beings.						2						2			
					14	CO3	Analyze the profession and his role in this existence.						2						2			
5	13-BS -101	Linear Algebra and multivariate calculus	3-0-2	4	15	CO 1	Determine extreme values for functions of several variables					2							2		Modified from the previous syllabus	This course helps to use mathematics for computer science applications
					16	CO 2	Determine area, volume moment of inertia through multiple integrals in Cartesian or polar co ordinates.					2							2			
					17	CO 3	Apply the concepts of vector calculus to calculate the gradient, directional derivative, arc length, areas of surfaces and volume of solids in practical problems											2	2			
					18	CO 4	Obtain analytical and numerical solutions of Heat and wave equations					2							2			
6	13-BS -102	Differential Equations	3-1-0	4	19	CO-1	Formulate physical laws and relations mathematically in the form of first order differential equations and identify a method for solving and interpreting the results.					1							1		Modified from the previous syllabus	This course helps to use mathematics for computer science applications
					20	CO-2	Formulate physical laws and relations mathematically in the form of second/higher order differential equations and identify a method for solving and interpreting the results.					1							2			
					21	CO-3	Provide solutions for Fourier series of periodic/non-periodic phenomenon in models involving differential equations.					1							1			
					22	CO-4	Apply numeric solution methods for a system of linear algebraic equations and application oriented matrix eigenvalue problems.					1							1			

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
					23	CO-5	Verify the solution of problems through MATLAB.											1	1				
7	13-BS- 103	Engineering Physics	3-0-2	4	24	CO 1	Understands structure of crystalline solids, kinds of crystal imperfections and appreciates structure-property relationship in crystals.			1									1		Modified from the previous syllabus	This course helps to use principles of physics in computer science applications
					25	CO 2	Understands magnetic properties of materials and identifies their role in classification soft & hard magnetic materials having specific engineering applications.			1									1			
					26	CO 3	Understands thermal and mechanical properties of materials, heat treatment methods for changing the microstructure of materials and responses of materials subjected to load.			1									1			
					27	CO 4	Understands the role of electronic energy band structures of solids in governing various electrical and optical properties of materials.			1									1			
8	11-BS -104	Engineering Chemistry	3-0-2	4	28	CO 1	Describe some important design considerations in choosing a battery for a specific application.			1									1		Modified from the previous syllabus	This course helps to use principles of physics in computer science applications
					29	CO 2	Predict potential complications from combining various chemicals or metals in an engineering setting			1									1			
					30	CO 3	Examine water quality and select appropriate purification technique for intended problem			1									1			
					31	CO 4	Explain the role of chemical kinetics in the formation and destruction of ozone in the atmosphere and predict the connection between molecular behavior and observable physical properties.		1										1			
					32	CO-5	An ability to analyze & generate experimental skills.		1										1			
					33	CO 1	Apply the concept of sets, relations, functions, discrete structures, Sum rule and product rule,												2			

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9	13-BS-206	Discrete Mathematics	3-0-0	3	34	CO 2	Apply Count discrete event occurrences; Apply Propositional logic and First order logic to solve Problems												2		Modified from the previous syllabus	This course helps to use mathematics for computer science applications
					35	CO 3	Apply Advanced Counting Techniques,Formulate and solve recurrence relations;Apply Lattice theory												2			
					36	CO 4	Apply the concepts of graphs and trees												2			
10	13-ES- 103	Engineering Materials	3-0-0	3	37	CO 1	Understand the concepts of crystallography and crystalline imperfections in order to determine crystal structures and to identify defects in crystals			1									1		Modified from the previous syllabus	This course helps to use principles of materials in computer science applications
					38	CO 2	Understand electrical and optical properties of materials and apply them to know various mechanisms involved in electrical, electronic, optical, optoelectronic devices.			1									1			
					39	CO 3	Understand mechanical and thermal properties of materials and apprehend their importance in identification of materials for specific engineering applications			1									1			
					40	CO 4	Understand magnetic properties of materials and apply them to know various mechanisms involved in magnetic memory devices and transformers.			1									1			
					41	CO 5	Understand various properties of materials and apply the knowledge to execute the related experiments to get hands on experience and also to develop some inter disciplinary projects.			1									1			
					42	CO-1	Understand and apply the fundamentals of a measurement system, characteristics, and metrology using simulation and experimentation tools.	2	2										2			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs) a	b	C	d	e	f	g	h	i	j	k	PSO 1	PSO 2	Type	Rationale
11	13-ES- 102	Measurements	3-0-2	4	43	co-2	Understand various electrical & computer parameters, and apply different measuring techniques on various electrical parameters using simulation and experimentation tools.	2	2										2		Modified from the previous syllabus	This course helps in unerstanding basics of electrical engineering
					44	CO-3	Understand electronic & electro-physiological parameters, and apply measuring techniques on electronic parameters using simulation and experimentation tools.	2	2										2			
					45	CO-4	Understand and apply different measuring techniques on civil and mechanical parameters using simulation and experimentation tools.	2	2										2			
					46	CO-5	Apply the theoretical concepts to measure different parameters		2										2			
12	11-ES -104	Engineering Graphics with CAD	0-0-4	2	47	CO 1	Draft orthographic Projections, Isometric views ,projection of planes, Manually and prepare Models in workshop by using drawings.											2	2		Modified from the previous syllabus	This course helps use of engineering graphics in computer graphics skill development
					48	CO 2	Draftorbtographic projections ,isometric views , projection of planes using Autocad. Draft projection of solids Manually and by using AutoCAD and prepare Models in workshop by using different workshop trades											2	2			
					49	CO 3	Draft Development of surfaces of solid and sections of solid Manually												2			
					50	CO 4	Practicing house wiring through Auto Cad											2	2			
					51	5	Develop 2D & 3D components using Auto Cad Software											2	2			
13	13-ES -105	Workshop Practice	0-0-4	2	52	CO 1	Hands on practice on wood working operation using hand tools												2		Modified from the previous syllabus	helps in knowing fundamentals of work shop practice
					53	CO 2	Hands on practice on sheet metal working.												2			
					54	CO 3	Hands on practice on moulding by preparing a sand mould												2			
					55	CO 4	Hands on practice on Soldering by mounting electronic components												2			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO 1	PSO 2	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k				
14	13-ES- 101	Problem Solving through Programming	3-0-2	4	56	CO 1	Illustrate how problems are solved using computers using operators and different number types, functions.												3		Modified from the previous syllabus	Basic programming course to know and use algorithms and implement using c programming
					57	CO 2	Illustrate and use Control Flow Statements in C along with preprocessor directives and Storage classes.												3			
					58	CO 3	Interpret & Illustrate different formatted input and output along with arrays and pointers with arrays.												3			
					59	CO 4	Illustrate the use of Pointer Arithmetic along with arrays, Characters and Strings.												3			
15	13-ES -106	Engineering Mechanics	3-0-2	4	60	CO 1	Apply the concept of forces, governing static equations and analyze planer system of forces. Apply different analytical methods on spatial system of forces and analyzing them	2											2		Modified from the previous syllabus	helps in understand enginnering mechanics
					61	CO 2	Understanding the concepts of planar and non-planar system of parallel forces and analyzing them. estimate moment of inertia of lamina and material bodies	2											2			
					62	CO 3	Analyzing the rigid bodies under translation and rotation with and without considering forces.					1							1			
					63	CO 4	Understanding the engineering mechanics physical systems prepare and demonstrate the models with the help of mechanics concepts to solve the engineering problems					1							1			
					64	CO5	Apply the concepts of mechanics and carryout different experiments and analyze the results		2										2			
					65	CO-1	Understand the fundamentals of thermodynamic systems and processes	2											2		New	helps in understand
					66	CO-2	Apply laws of the thermodynamics and principle of entropy to engineering devices.	2											2			

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
16	13-ES -201	Thermodynamics	3-0-0	3	67	CO-3	Analyze various air standard cycles and their performance.	2											2		New Course is Added	helps in understand thermodynamics and logic building
					68	CO-4	Evaluate the performance of fuels and combustion to various engines.		1									1	1				
					69	CO 5	Apply the theoretical concepts to conduct various experiments of thermodynamics practically and analyze the data.		2										2				
17	13-ES -203	Network Theory	3-0-2	4	70	CO 1	Understading network theory	2											2		New Course is Added	helps in understand network theory and logic building
					71	CO 2	Apply concepts of electrieal networks		2									2					
					72	CO 3	Analyse concepts of electrical networks		2										2				
					73	CO 4	Analyse concepts of electrical networks topologies	2											2				
18	13-ES -205	Signal Processing	3-0-2	4	74	CO 1	Demonstrate signals and their Spectra	2	2										2		New Course is Added	helps in understand. signal analysis and logic building
					75	CO 2	Analyze discrete time systems	2	2										2			
					76	CO 3	Design filters to cater signal analysis needs											2	2				
					77	CO 4	Analyze non stationary signals in time											2	2				
					78	CO 5	Analyze non stationary signals in frequency domains											2	2				
19	13 ES 202	Object Oriented Programming	3-0-2	4	79	CO1	The student will be able to understand Basic Concepts of OOP, apply the concepts of classes and objects through Java Language.	2				2							3		New Course is Added	Learning and Programming Language and helps in Skill Development
					80	CO2	The student will be able to apply the concepts of constructors, Overloading, parameter passing, access control, Inheritance.	2				2							3			
					81	CO3	The student will be able to apply Packages, Interfaces, Exception Handling.	2				2							3			
					82	CO4	The student will be able to apply I/O Streams and understand Basic Concepts of Multi –Threading	2				2							3			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
					83	CO5	Students will be able to develop programs and projects in java.	2				2							3			
20	13 ES 204	DATA STRUCTURES	3-0-2	4	84	CO1	apply measures of efficiency to algorithms and Compare various linear data structures like Stack ADT, Queue ADT, Linked lists.	2				2							3		New Course is Added	Enhances the Skills by learning various datastructures used in storing and retrieve Data
					85	CO2	analyze and compare linear data structures and analyze different searching and hashing techniques.	2				2							3			
					86	CO3	analyze and compare various non – linear data structures like Trees and Graphs.	2				2							3			
					87	CO4	analyze and compare various sorting algorithms, to select from a range of possible options, to provide justification for that selection, and to implement the algorithm in a particular context.	2				2							3			
					88	CO5	understand and execute lab experiments and develop a small project along with his/her team members.	2			2	2							3			
21	13 cs 202	Human computer interaction	3-0-2	4	89	CO1	illustrate the discussion with clients		1	1									2		New Course is Added	Skill Development
					90	CO2	develop paradigms for interaction	1		2									2			
					91	CO3	elucidate interface design rules			2		1							2			
					92	CO4	evaluate the interface principles	1										2	2			
					93	CO5	demonstrate the usage of computer softwae to generate new lauouts											2	2			
					94	CO1	Understand the basic concepts of operating system, OS structure and process concepts.	1				1							2			

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								a	b	C	d	e	f	g	h	i	j	k				
22	13 CS 203	Operating Systems	3-0-2	4	95	CO2	Apply the concepts Process Scheduling algorithms and Process Synchronization Problems.	2				2							2		New Course is Added	Basic management of computer system taught for skill dvelopment
					96	CO3	Solve the concept of the Deadlock, Memory Management and Virtual Memory Concepts.	2				2							2			
					97	CO4	Demonstrate file system interface, structure, file allocation methods, free space management and threads.	1				1							2			
					98	CO5	Create and develop a project along with his/her team members.					3							2			
23	13 CS 204	Data Base Management System	3-0-2	4	99	CO1	Explain the advantages of DBMS, its Characteristics, Concepts and ER-Model.	1											3		Modified from the previous syllabus	coding and data retrival used in application development is taught for employability and skill development
					100	CO2	Demonstrate Relational Database using SQL detailing the role of Relational Algebra and Relational Calculus	2											3			
					101	CO3	Illustrate the normal forms of Relational DBMS detailing the process of normalization.					2							3			
					102	CO4	Examine Transaction Management, Concurrency Control, File Organizations, Indexing, and Storing data.					2							3			
					103	CO5	Create and Access Data Base for given Applications		2										3			
					104	CO1	Understand OSI and TCP/IP Models and basics of physical layer and their issues	1											2			
					105	CO2	Demonstrate Data Link layer issues and medium access control sub layers concepts					2							2			

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								a	b	C	d	e	f	g	h	i	j	k				
24	13 CS 205	Computer Networks	3-0-2	4	106	CO3	Analyze and implement the algorithms of network and transport layers and concerned services					2							2		New Course is Added	Basic principles of networking is taught for skill dvelopment
					107	CO4	Evaluate and execute the concepts of TCP ,UDP and the application layer conceptions					3							2			
					108	CO5	Demonstrate the basic concepts of protocols and their design including client/server models, connection oriented and connection-less models					2							2			
25	11 EM 301	Internet Programming	3-0-2	4	109	CO1	Describe and Illustrate the concepts of HTML tags, and CSS through an application , DHTML, JavaScript functions	1				2							3		Retained from previous syllabus	All modern webbased development taught for Skill Development
					110	CO2	Describe Java fundamentals and inheritance property and polymorphism in java	1				2							3			
					111	CO3	Develop java programs using Encapsulation property and Exception handling	1				2							3			
					112	CO4	Design java applications using multithreading, Applets, Design results processing application using JSP	1				2							3			
					113	CO5	Demonstarte java programs in computer lab	1				2							3			
26	13 cs 301	software engineering	3-0-2	4	114	CO1	illustrate different phases involved in the software development		2										3		New Course is Added	priniciples of software development taught for Skill Development
					115	CO2	explain the concepts of system modeling			2									3			
					116	CO3	design the architecure UI		2										3			
					117	CO4	demonstrate the testing strategies	1											3			
					118	CO1	Examine the space and time complexities of basic algorithms												2			

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
27	13 cs 302	Design and Analysis of Algorithms	3-0-2	4	119	CO2	Demonstrate Greedy and Dynamic programming methodology for solving optimization problems		1										2		New Course is Added	fine tuning and design of algorithms for the requirement for skill development
					120	CO3	Apply back tracking and branch and bound methodology for searching same state space trees					2							2			
					121	CO4	identify the purpose of NP-hard, NP-complete hard graph problems and illustrate PRAM algorithms	1											2			
28	13CS201	Digital Logic Design& Computer Organization	3-0-2	4	122	CO1	Understand various Number systems ,Codes and their conversion procedures and Complements of numbers used in Digital Systems	1											2		New Course is Added	Enhance the skills in study towards digital circuit design and its organization towards employability
					123	CO2	Apply Boolean Identities for simplifying Boolean Expressions,Combintional and Sequential Circuis.			2									2			
					124	CO3	Understand the functionality and design the CPU functional units - control unit, registers, the arithmetic and logic unit, the instruction execution unit, and the interconnections among these components.	1											2			
					125	CO4	Understand, analyze and design main, cache and virtual memory organizations.			2									2			
					126	CO5	Demonstrate the basic concepts of Digital logic in the Laboratory				2								2			
29	13 cs 303	Information Assurance and Security			127	CO1	illustrate and examine conventional cryptographic procedures	1				2							2		New Course is Added	Skill Development in leaning various Security techniques and tools
					128	CO2	illustrate and examine modern cryptographic and hash algorithms		1		2								2			
					129	CO3	demonstrate and study MAC and digital signature algorithms			1	2								2			

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
					130	CO4	demonstrate and study key management distributions			1	2	2							2			
30	13 CS 304	Artificial Intelligence	3-0-2	4	131	CO1	Students will able to apply PROLOG programming for the AI concepts					2							3		New Course is Added	fundamental principles are taught for the upcoming technologies for Skill Development
					132	CO2	Students will be able to relate methods for encoding Knowledge In computer systems	1											3			
					133	CO3	Students will be able to Interpret the Problems and search related to AI	1											3			
					134	CO4	Students will be able to infer Slot-and-filler structures and architecture of neural networks as connectionist models	1											3			
					135	CO5	Demonstrate the basic concepts of artificial intelligence in the Laboratory					2							3			
					136	CO1	Distinguish centralized computing and distributed computing detailing formal model of a distributed message passing system and the complexity measures of message passing between systems presenting important abstractions for designing distributed programs	2				2							3			basic principles of
					137	CO2	Identify the leader by coordinating among processors, elaborating formal models for shared memory system and memory requirement for solving mutual exclusion problem.	2				2							3			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
31	13 CS 305	Distributed Computing	3-0-2	4	138	CO3	Utilize DSM model for inter process communication showing relationship between various types of shared objects and Identify clock synchronization problem applying tight bounds to synchronize clocks.	2				2							3		New Course is Added	basic principles of distributed software over networking environment is taught forskill dvelopment
					139	CO4	Examine the process of realizing reliable fault tolerance in distributed systemreflecting the specific type of faulty behavior and illustrate simulation that makes Byzantine failures appear to be crash failures	2				2							3			
					140	CO5	Experiment with laboratory programs and develop a small project along with his/her team members.	2				2							3			
					141	CO1	The Student will be able to define & represent finite Automata and its variations & construct Finite Automata for accepting different kinds of regular languages and their inter conversions	3	3			3							1			
					142	CO2	The student will be able to define regular sets, its properties and its rationale with pumping lemma of Regular Sets & Construct Finite Automata from regular languages and vice-versa	3	3			3							1			

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
32	13 CS 306	Automata and Formal Languages	3-0-2	4	143	CO3	The Student will be able to describe grammars, its representation and the foundation for parsing mechanism of language semantics and constructing context free grammars for different languages			3									1		New Course is Added	system design concepts are taught for skill dvelopment
					144	CO4	The Student will be able to define & represent Push down Automata and its variations and Construct a PDA for real world problems and its justification with Grammars				3	3							1			
					145	CO5	The Student will be able to define Turing Machine and its variations & construct Turing Machine for unrestricted languages				3	3							1			
33	13 CS 401	Compiler Design	3-0-2	4	146	CO1	Understand the overall compiler architecture and design of Lexical Analyzer	2											2		new course introduced	useful for the skill development, good to design new languages
					147	CO2	Construct the parser using the Yacc tool	3			3								2			
					148	CO3	Analyze Syntax directed definition and its translations schemes, intermediate code	2				2							2			
					149	CO4	Apply the code optimization and generation techniques in the development of a compiler.	2				2							2			
					150	CO5	Design of simple compiler using LEX and YACC tools											3	2			
					151	CO1	Understand the History and need of Simulation and Modeling with Examples.	1				1							2			
					152	CO2	Analyze Various general principles, Statistical and Queueing Models.	2				2							2			

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								a	b	C	d	e	f	g	h	i	j	k				
34	13 CS 402	simulation and modelling	3-0-2	4	153	CO3	Analyze Simulation of Input Modeling and Verification and Validation of the Models	2				2							2		new course introduced	Add knowledge towarrds stochastic models and helps in self development
					154	CO4	Apply the Simulation on Manufacturing and Material Handling Systems, Computer System and Computer Networks.	2				2							2			
					155	CO5	Develop the basic concepts of Simulation and Modeling	2				2						3	2			
35	13 CS 331	Data Warehousing and Mining	3-0-0	3	156	CO1	Student should be able to Understand the necessity of data preprocessing in construction of data warehouse.	1												3	New Course is Added	working on tools of data warehousing increses the chances of employability
					157	CO2	Student should be able to Analyze multidimensional data using OLAP tools to facilitate effective data mining.	2	2			s								3		
					158	CO3	Student should be able to Apply the concepts of data analysis and clustering to postulate accurate classification model for a given problem.		2	2										3		
					159	CO4	Student should be able to Recommend a methodology formining complex data types and detection of anomaly for the given Application.	3		3										3		
36	13 CS 332	Advanced Database Management Systems	3-0-0	3	160	CO1	Understand the fundamentals of query optimization and database recovery protocols.	1												3	New Course is Added	modern databses are taught for employability
					161	CO2	Analyze emerging database technologies and distributed databases.			2										3		
					162	CO3	Discriminate object oriented and relational database systems.	2												3		

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
					163	CO4	Analyze multimedia databases.			2										3		
37	11 CS 432	Big Data Analytics	3-0-0	3	164	CO1	Explain the big data that is emerging from multiple big data sources in terms of velocity, variety and veracity	1												3	new course introduced	Latest concepts big data and its analysis is taught for employability and skill development
					165	CO2	Illustrate the technologies, processes and methods for analyzing big data					2						2		3		
					166	CO3	Demonstrate the key principles of data analysis using the R tool					2								3		
					167	CO4	Examine advanced Graphs, Regression, Forecasting and Time Series models using R analytical platform.											3		3		
38	13 CS 333	Database Security	3-0-0	3	168	CO1	Understand the fundamentals of database security and security risks related to user administration	1				1								2	New Course is Added	Helps for employability in securing the database
					169	CO2	Apply password policies and security models					2								2		
					170	CO3	Analyze virtual private database using views in SQL Server 2000 and Oracle 10g and understand database auditing, auditing models	2										2		2		
					171	CO4	Apply auditing techniques on the real world problems using Oracle 10g and SQL server 2000	2										2		2		
					172	CO1	Summarize distributed databases		1											3		
					173	CO2	Analyze parallel database for searching, sorting, join and group by join.		2			2								3		

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								a	b	c	d	e	f	g	h	i	j	k				
39	13 CS 431	Distributed Databases	3-0-0	3	174	CO3	Apply parallel database for indexing, collection of join query, scheduling, optimizing, transactions in Distributed, Grid Databases and Grid Concurrency Control.		2			2								3	new course introduced	Enhance the skills in study towards distributed databases and enhance the option towards employability
					175	CO4	Illustrate grid transaction atomicity, durability, replica management and data intensive applications.		2			2								3		
40	13 CS 334	TCP/IP Protocol suite	3-0-0	3	176	CO1	Understand the basic components of TCP Protocol suite.	1												3	New Course is Added	Internet kind of protocos are taught for Employability
					177	CO2	Understand the concepts of IP protocol ,mobile IP,P Addressing mechanisms & attacks on IP	1												3		
					178	CO3	Apply socket API to write programs related to client server communication					1						2		3		
					179	CO4	Analyze Various Networking Applications & Network management techniques via a case study/ NS2 simulator tool.					1						2		3		
41	13 CS 335	NETWORK PROGRAMMING	3-0-0	3	180	CO1	Student will be able to Understand the key components of Network Programming	1				1								3	New Course is Added	Helps towards employability as networking experts
					181	CO2	Student will be able to Apply socket API for TCP and UDP to write programs related to Client/Server communication	1				1						2		3		
					182	CO3	Student will be able to Analyze various Advanced Sockets & Networking Applications through Unix domain protocols and Routing Sockets	1				1						2		3		

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
					183	CO4	Student will be able to construct multiple threads that communicate with each other using Sun RPC	1				1						2		3		
42	13 CS 336	Routing Algorithms	3-0-0	3	184	CO1	Understand the need of Routing Algorithms, framework and principles of Network Flow Modelling	1												3	New course introduced	Helps towards employability as networking experts
					185	CO2	Analyze the routing algorithms with its working and comparison					2								3		
					186	CO3	Understand the routing achitectures and quality of service in routing	1												3		
					187	CO4	Analyze the working structure of VOIP Routing					2								3		
43	13 CS 433	High speed Optical Communication Networks	3-0-0	3	188	CO1	Understand the basics of light signals and different types of optical communication link methodologies					1								2	new course introduced	Helps towards employability as networking experts
					189	CO2	Understand the concepts of transmission characteristics of optical fibers and dispersion					1								2		
					190	CO3	Analyze the concepts of optical transmission and detectors, electro optic modulation and optical amplifier					2								2		
					191	CO4	Analyze the concept of basic networks					2								2		
					192	CO1	The course will provide knowledge of information security technology and methods for communication systems that provide services for mobile users by wireless access networks.	2												2		

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								a	b	C	d	e	f	g	h	i	j	k				
44	13 CS 434	Wireless Communications and Networking	3-0-0	3	193	CO2	Knowledge and understanding of security mechanisms and protocols in wireless communication systems, such as the topical technologies of WLAN IEEE 802.11, WAN 802.16, GSM/UMTS/LTE, Ad-hoc and sensor networks.					2								2	New course introduced	Helps towards employability as networking experts
					194	CO3	Knowledge about some of the models, design principles, mechanisms and solutions used in wireless network security to obtain authentication and key transport protocols.					2								2		
					195	CO4	Students will gain an understanding of wireless networking, protocols, and standards and security issues											2		2		
45	13 CS 337	Object Oriented Analysis and Design	3-0-0	3	196	CO1	Understanding the concepts of UML (Unified Modeling Language)and UP(Unified Processing)		1									1		3	New Course is Added	Helps towards employability as Software Engineering experts
					197	CO2	Analyze the requirements using UML		2									2		3		
					198	CO3	Create class and objects using UML.		3									3		3		
					199	CO4	Design and implement the software using UML.		3									3		3		
46	13 CS 338	Requirement Engineering	3-0-0	3	200	CO1	Identify stakeholders and their influence on the system requirements.					2								2	New Course is Added	Helps towards employability as Software Engineering experts
					201	CO2	Identify and classify non-functional requirements, influences and constraints.	1												2		
					202	CO3	Validate requirements and Document and trace requirements using computer-based tools.	1												2		

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
					203	CO4	Infer Practice the different roles in the requirement engineering process, by working in groups analysis	1												2		
47	13 CS 435	Software Reliability	3-0-0	3	204	CO1	Explain software Reliability measures viz., mean time to failure, Failure Rate Function,	1												2	new course introduced	Helps towards employability as Software Engineering experts
					205	CO2	Illustrate software verification, validation and their relation to software reliability		1											2		
					206	CO3	Demonstrate estimation of reliability using failure data of a software product and software cost model based on software reliability		1											2		
					207	CO4	Examine a suitable reliability model for the product												2		2		
48	13 CS 339	Software Testing & Quality Assurance	3-0-0	3	208	CO 1	Ability to define software systems by using various testing principles followed by test processes by inferring test generation methods and FSM models.	1						1						2	New Course is Added	Helps towards employability as Software Engineering experts
					209	CO 2	Make test adequacy assessment with the help of various source tools and application of those techniques in commercial environment.	2				2								2		
					210	CO 3	Analyze and prepare quality management by considering governmental standards, pareto principles and up-front quality technique.	2												2		

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
					211	CO 4	Relate the concepts of software safety and its relation to software quality assurance for the development of small projects.	3						3						2		
49	13-CS-430	Software Project Management	3-0-0	3	212	CO 1	Ability of the students to Develop project plans for different types projects	1												2	new course introduced	Helps towards employability as Software Engineering experts
					213	CO 2	Ability to estimate time, cost, effort, resource requirements and the quality											2		2		
					214	CO 3	Ability to undertake risk management for a given project											2		2		
					215	CO 4	Ability to handle different tools using which project management is undertaken											2		2		
50	13 CS 340	SECURE PROGRAMMING	3-0-0	3	216	CO1	Students will be able to Define the concept of Secure Systems Design, Security Goals , Secure Design Principles.	1												2	New course introduced	Helps towards employability as Security and Forensics experts
					217	CO2	Students will be able to show the Client-State Manipulation with SQL Injection for Password Security and Cross-Domain Security in Web Applications	1												2		
					218	CO3	Students will be able to Find Static Analysis as Part of the Code Review Process and procedure for Handling Input Buffer Overflow	1												2		
					219	CO4	Students will be able to List the process of Errors and Exceptions in Web Applications, XML and Web Services with the help of Privacy And Secrets Privileged Programs	1												2		

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								a	b	C	d	e	f	g	h	i	j	k				
51	13 CS 341	CRYPTANALYSIS	3-0-0	3	220	CO1	Understand the classic ciphers and world war II ciphers	1												3	New course introduced from previous sylabus	Helps towards employability as Security and Forensics experts
					221	CO2	Understand the Stream Ciphers and Block Ciphers			2										3		
					~~222~~	CO3	Illustrate and Examine Hash Functions	1												3		
					223	CO4	Describe the Public Key System and analyze the Attacks on Public Key System			2										3		
52	13 CS 342	Elliptic curve Cryptography	3-0-0	3	224	CO1	Understand the Equations, Laws and Proofs for Elliptic Curve	1				1								2	New course introduced	Helps towards employability as Security and Forensics experts
					225	CO2	Understand the Torsion Points, Elliptic Curve Over Finite Fields		1		1									2		
					226	CO3	Understand the Discrete Logarithm Problem, Elliptic Curve Cryptography			1	1									2		
					227	CO4	Understand the Applications, Divisiors, Hyper Elliptic Curves.			1	1									2		
		Cyber			228	CO1	Illustrate Web Application (In) security, Core Defense Mechanisms, Web Application Technologies, Mapping the Application, Bypassing Client-Side Controls.	2												2	New course	Helps towards employability as
					229	CO2	Analyze Attacking Authentication, Attacking Session Management, Attacking Access Controls, Attacking Data Stores, Attacking Back-End Components.		2											2		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO 1	PSO 2	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k				
53	13 CS 437	Cyber Security	3-0-0	3	230	CO3	Categorize Attacking Application Logic, Attacking Users: Cross-Site Scripting, Attacking Users: Other Techniques, Automating Customized Attacks, Exploiting Information Disclosure.		2											2	Course introduced	Employability as Security and Forensics experts
					231	CO4	Inspect Attacking Native Compiled Applications, Attacking Application Architecture, Attacking the Application Server, Finding Vulnerabilities in Source Code.		2											2		
54	13 CS 438	Trust Worthy Computing	3-0-0	3	232	CO 1	Students are able to understandimportance of system reliability using common statistical distributions and the importance of reliability models.	1	1											2	New course introduced	Helps towards employability as Security and Forensics experts
					233	CO 2	Students are able to analyzesecurity risk by using quantitative models and stopping rules in software testing.	2										2		2		
					234	CO 3	Students are able to analyze availability modeling and investigate the reliability in simple and complex embedded systems, Introduction to Microsoft TWC.	2	2											2		
					235	CO 4	Students are able to understand applications of aspect-oriented programming in trustworthy computing.	2				2								2		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
55	13 CS 343	Advanced Computer Architecture	3-0-0	3	236	CO1	Student will be able to Understand the Overview of von Neumann architecture and Pipelining	1												2	New course introduced	Helps towards employability for expertized knowledge in Multi core, Grid and Cloud Technologies
					237	CO2	Student will be able to Demonstrate Hierarchical Memory Technology	1												2		
					238	CO3	Student will be able to Explain the Instruction level parallelism	1												2		
					239	CO4	Student will be able to Analyze the Multiprocessor Architecture	2								2				2		
56	13 CS 344	Parallel Computing	3-0-0	3	240	CO1	Understand the performance improvements of uni-processor systems through pipelining, classify different parallel processing systems.	1												2	New course introduced	Helps towards employability for expertized knowledge in Multi core, Grid and Cloud Technologies
					241	CO2	Differentiate shared memory and distributed memory systems, design parallel programs through shared memory programming API 's	2												2		
					242	CO3	Apply the MPI features to solve the Distributed memory programming problems					2								2		
					243	CO4	Analyze the parallel programming concepts on PRAM computing model.					2								2		
57	11 CS 439	Cloud Computing	3-0-0	3	244	CO1	Understand Enterprise cloud computing paradigm.	1												2	New course introduced	Helps towards employability for expertized knowledge in Multi core, Grid and Cloud Technologies
					245	CO2	Understand PaaS cloud Computing Envinorments.								1					2		
					246	CO3	Analyze the performance of High performance computer on clouds.						2							2		
					247	CO4	Evaluate the data security issues in clouds.											3		2		
					248	CO1	Understand and analyze the parallel programming concepts complex systems	2												2		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
58	13 CS 345	Grid Computing	3-0-0	3	249	CO2	Apply the concepts of parallel programming using CORBA											2		2	New course introduced	Helps towards employability for expertized knowledge in Multi core, Grid and Cloud Technologies
					250	CO3	Understand and analyze the concepts of cluster computing and its deployment	2				2								2		
					251	CO4	Understand and integrate the resources and services in Metacomputing					2								2		
59	13 CS 446	High Performance Computing	3-0-0	3	252	CO1	Apply parallel programming algorithms													3	New course introduced	Helps towards employability for expertized knowledge in Multi core, Grid and Cloud Technologies
					253	CO2	Understand and apply the analytical modelling of parallel programs													3		
					254	CO3	Apply and analyze the GPU programming													3		
					255	CO4	Apply parallel programming to heterogeneous computing													3		
60	13 CS 346	2D/3D Graphics	3-0-0	3	256	CO1	Students are able to understand two-dimensional Computer Graphics	1												3	New Course is Added	Helps towards employability for expertized knowledge Graphics and Visualization
					257	CO2	Students are able to solve mathematical methods for three dimensional computer graphics	2				2								3		
					258	CO3	Students are able to compare and contrastrealistic rendering	2										2		3		
					259	CO4	Students are able to explain geometric modeling	1												3		
61	13 CS 347	Digital Image Processi	3-0-0	3	260	CO1	Describe the uses of Digital Image Processing and its Applications, Image Acquisition and Image Enhancement	1				1								3	New course introduce	Helps towards employability for expertized knowledge
					261	CO2	Analyze image enhancement algorithms such as histogram modification, contrast manipulation, edge detection and restoration		1		1									3		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
		Processing			262	CO3	Inspect how Wavelet, Multi-resolution, Compression and Morphological Image Processing are realized			1	1									3	Introduced	Graphics and Visualization
					263	CO4	Illustrate Image Segmentation, Representation and Description and Object Recognition process			2	2									3		
62	13 CS 348	Animation	3-0-0	3	264	CO1	Understand the basics and technical background of animation.	1												3	New course introduced	Helps towards employability for expertized knowledge Graphics and Visualization
					265	CO2	Analyze the techniques used for Motion capturing and types of Animations					2						2		3		
					266	CO3	Understand the concepts of fluids and image modeling					1								2		
					267	CO4	Understand the various types of animation.					1								1		
63	13 CS 441	Video and Audio Streaming	3-0-0	3	268	CO1	Understand the video formats and usage of video compression techniques.	2												3	New course introduced	Helps towards employability for expertized knowledge Graphics and Visualization
					269	CO2	Analyze the audio compression techniques and introduction to streaming media											2		2		
					270	CO3	Understand and Analyze the concepts of audio and video encoding and preprocessing					1								2		
					271	CO4	Apply stream serving and live web casting techniques for various files	2												2		
64	13 CS 442	Multimedia Technologies	3-0-0	3	272	CO1	Understand the framework and standards for multimedia communication	1												2	New course introduced	Helps towards employability for expertized knowledge Graphics and Visualization
					273	CO2	Analyze the application layer services for multimedia technologies					2								2		
					274	CO3	Understand the middleware layer streaming for media coding												1		2		

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
					275	CO4	Apply and analyze the Network layer functionalities for multimedia technology	2				2								2		
65	13 CS 349	Soft Computing	3-0-0	3	276	CO1	Explain soft computing differentiating hard and soft computing and enumerate briefly overview of fuzzy systems , neural networks and genetic algorithms	1												2	New Course is Added	Helps towards employability for expertized knowledge in Artificial Intelligence and Neuralnetworks and fuzzy Logic
					277	CO2	Demonstrate a fuzzy controller using fuzzy logic systems		2		2									2		
					278	CO3	Interpret pattern recognition using artificial neural network		2		2									2		
					279	CO4	Interpret Genetic algorithms and operations,.		2		2									2		
66	13 CS 350	Machine Learning	3-0-0	3	280	CO1	Understand and apply the differences among the styles of learning: supervised, reinforcement, unsupervised and parametric methods	1												2	New Course is Added	Helps towards employability for expertized knowledge in Artificial Intelligence and Neuralnetworks and fuzzy Logic
					281	CO2	Comprehend probabilistic methods for learning and for classification					2								2		
					282	CO3	Analyze the non parametric methods and decision trees to take the proper decision making.	2												2		
					283	CO4	Understand rule based knowledge and Kernel machines to reduce the cost of various statistical methods , Bayesian Estimation, HMM models	2												2		
					284	CO1	Understand the concept of Essential Information Theory , Linguistic Essentials and Statistical Inference n-gram models	2												3		Helps towards

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	c	d	e	f	g	h	i	j	k	1	2		
67	13 CS 351	Natural Language Processing	3-0-0	3	285	CO2	Analyze Word Sense Disambiguation ,HMM and CFG	2								2				3	New Course is Added	Helps towards employability for expertized knowledge in Artificial Intelligence and Neuralnetworks and fuzzy Logic
					286	CO3	Illustrate Text and Sentence Alignment, Clustering in detail.	2								2				3		
					287	CO4	Explain Information Retrieval and Text Categorization , Perceptron in detail.	2								2		2		3		
68	13 CS 443	Multi Agent Systems	3-0-0	3	288	CO1	Students will be able to compare and contrast different types of Agents	2				2								2	new course introduced	Helps towards employability for expertized knowledge in Artificial Intelligence and Neuralnetworks and fuzzy Logic
					289	CO2	Students will be able to illustrate how agents interact with each other to perform tasks delegated to them	2				2								2		
					290	CO3	Students will be able to choose different methodologies for designing and developing an Agent	3				3								2		
					291	CO4	Students will be able to explain the various applications of Agents	2				2								2		
69	13 CS 444	Computer Vision	3-0-0	3	292	CO1	Understand Image representation and modeling	1												2	New course introduced	Helps towards employability for expertized knowledge in Artificial Intelligence and Neuralnetworks and fuzzy Logic
					293	CO2	Apply Image transformation methods					2								2		
					294	CO3	Interpret image processing algorithms	1												2		
					295	CO4	Understand face detection and recognition algorithms					1								2		
		Fundam			296	CO1	Understand the fundamentals of database management systems including data models, database architectures, and database manipulations and be able to model ER-diagrams.		2		2									2		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
70	13 OE 429	Fundamentals of Information Technology	3-0-0	3	297	CO2	Understand the theories and techniques in developing database applications and be able to write queries, functions and procedures with help of SQL				2	2								2	modified from previous syllabus	concepts of data engineering is taught for employability
					298	CO3	Understand the different normal forms and transaction issues and be familiar with managing database systems, new developments and trends in databases.		2		2									2		
71	12 OE 445	Fundamentals of DBMS	3-0-0	3	299	CO1	Understand the architectural design of a computer and various basic concepts of operating systems and programming fundamentals	2			2									2	modified from previous syllabus	overall picture of IT is taught for employability
					300	CO2	Analyze various software development methodologies and gain capability to design databases.				2	2								2		
					301	CO3	Designing various model diagrams using Unified modelling language and understand basic commands that come across in querying a database.				2	2								2		
72	13 OE 430	SELF DEVELOPMENT	3-0-0	3	302	Co1	Understanding Values, Behavior and Attitudes						2							2	New course introduced	Builds Personality ethics and Values and helps in employment
					303	CO2	Understand and observe Observation, Introspection, Contemplation, Meditation and Concentration, Schools of Meditation						2							2		
					304	CO3	Understand Stress Management, Tips for Self-Management						2							2		
73	ME	Management Elective	3-0-0	3	305	CO	To enhance the Management Skills and to learn Professional Ethics								2					2	Retained from previous curriculum	Understand professional and ethical responsibility in order to achieve Management Skills

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO 1	PSO 2	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k				
74	13-AC-201	Energy & Society	Audit course	nil	306	CO 1	To Understand various aspects of Energy and its Technology						2							1	Retained from previous curriculum	d explore skills on the societa
					307	CO 2	To acquire Knowledge on the enegy audits and enhance for energy estimation								2					2		
75	13-AC-202	Employability Skills	Audit course	nil	308	CO 1	Analyze one's own strength as a speaker/ Communicator and use discretion while listening.							2					1		Introduced new course	Enhances Skills in communication whish inturn helps in achieving Employability
					309	CO 2	Apply and analyze various concepts of writing strategies in professional communication skills like, reports, resume and minutes of the meeting.							3					1			
76	13-AC-301	Advanced Employability Skills	Audit course	nil	310	CO 1	Understand the organization of the passage and also analyze the tone, attitude and style of the author.							2					1		Introduced new course	Enhances Skills to compete in competitive exams
					311	CO 2	Acquire knowledge of and apply people skills in various social organizational and corporate ambiences.						2						2			
77	13- TP-401	Term Paper	0-0-4	2	312	CO	To enhance Practical exposure towards solving complex engineering problems inorder to achieve Research Exposure					2					2			2	Retained from previous curriculum	Enhances Practical exposure towards solving complex engineering problems inorder to achieve employability
78	13-MP401	Minor project	0-0-6	3	313	CO	To enhance Practical exposure towards solving complex engineering problems inorder to achieve Research and Industrial Exposure					2								2	Retained from previous curriculum	Enhances Practical exposure towards solving complex engineering problems inorder to achieve employability
79	15CS512	Computational Complexity	3-0-2	4	314	CO1	Advances in Computing deals with the theoretical foundations of information and computation and their implementation and application in computer systems	1						2							New Course is Added	Useful for the skill development, good to design new Alternate
					315	CO2	It has also provided contributors with a medium in which they can explore their subjects in greater depth and breadth		2					2								

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
		Complexity																			Added	design new languages
					316	CO3	That continue to be of significant, lasting value in this rapidly expanding field.		2					2								
					317	CO4	Software Environments for Distributed systems and clouds: Parallel and Distributed Programming Models		2					2								
80	15CS513	Machine Inteligence	3-0-2	4	318	CO1	Explain the differences among the styles of learning:supervised,reinforcement, unsupervised, inductive and deductive	2												2	New Course is Added	Enhances the understanding in upcoming technologies and benefits the student to improve the employbility
					319	CO2	Comprehend probabilistic methods for learning					2								2		
					320	CO3	Understand Multivariate regression and Classification	2												2		
					321	CO4	Understand rule based knowledge and Analyze clustering	2												2		
81	15CS514	Optimization Techniques	3-0-2	4	322	CO1	Evaluate mathematical expressions by using different types of operations on numbers.	1						1							New Course is Added	To frame a mathemtical model to Research problems
					323	CO2	Simplify expressions and solve equations & inequations.					2		1								
					324	CO3	Apply different types of arithmetic expressions to solve given problems.							1								
					325	CO4	Apply methods to find areas , volumes and use graphs to reduce non-linear to linear forms.						2	1								
82	15CS515	Device Management	3-0-2	4	326	CO1	Understand the functionality and design the CPU functional units - control unit, registers, the arithmetic and logic unit, the instruction execution unit, and the interconnections among these components.			2									2	2		New Course is Added	Useful for the skill development, good to design new languages
					327	CO2	Understand, analyze and design main, cache and virtual memory organizations.			2									2	2		
					328	CO3	Understand, analyze and design different types of I/O transfer techniques			2									2	2		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO 1	PSO 2	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k				
					329	CO4	Understand the design issues of RISC and CISC CPUs and the design issues of pipeline architectures			2								2	2			
83	15CS516	Formal Methods	3-0-2	4	330	CO1	Analyzing the design issues involved in various constructs of programming languages, Design top-down and bottom-up parsers					2							2		New Course is Added	Useful for the skill development, good to design new languages
					331	CO2	Develop syntax directed translation schemes, Design and Implement LR parser					2							2			
					332	CO3	Use formal grammars to specify the syntax of Languages					2							2			
					333	CO4	Analyzing the methods and tools to define syntax and semantics of a languages											2	2			
84	13OE456	Algorithm Design and Analysis	3-0-2	4	334	CO1	Examine the space and time complexities of basic algorithms												2		New Course is Added	fine tuning and design of algorithms for the requirement for skill development
					335	CO2	Demonstrate Greedy and Dynamic programming methodology for solving optimization problems		1										2			
					336	CO3	Apply back tracking and branch and bound methodology for searching same state space trees					2							2			
					337	CO4	identify the purpose of NP-hard, NP-complete hard graph problems and illustrate PRAM algorithms	1											2			
		Principles			338	CO1	Understand the basic concepts of operating system, OS structure and process concepts.	1				1							2		New	Basic management of
					339	CO2	Apply the concepts Process Scheduling algorithms and Process Synchronization Problems.	2				2							2			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
85	13OE455	of Operting Systems	3-0-2	4	340	CO3	Solve the concept of the Deadlock, Memory Management and Virtual Memory Concepts.	2				2							2		Course is Added	computer system taught for skill dvelopment
					341	CO4	Demonstrate file system interface, structure, file allocation methods, free space management and threads.	1				1							2			
86	13OE457	Theory of Computatio us	3-0-2	4	342	CO1	Understand the overall compiler architecture and design of Lexical Analyzer					2							2		New Course is Added	Enhances Practical exposure towards solving complex engineering problems inorder to achieve employability
					343	CO2	Construct the parser using the Yacc tool					2							2			
					344	CO3	Analyze Syntax directed definition and its translations schemes, intermediate code					2							2			
					345	CO4	Apply the code optimization and generation techniques in the development of a compiler.											2	2			
87	13OE458	Parallel Processing	3-0-2	4	346	CO1	Understand Algorithms and sorting networks	1	2				3								new course introduced	This course to helps in getting the knowledge of concurrent algorithms and for skill development
					347	CO2	Ability to design and analyze parallel algorithms		2				3									
					348	CO3	Apply graph and search algorithms on sorting networks	1					3									
					349	CO4	Understand arithmetic and randomized compuations	2	2				3									
88	13OE459	Data Analytics	3-0-2	4	350	CO1	Acquire the ability to identify potential sources of data and distinguish between quantitative and qualitative data	1						2							new course introduced	This course helps in data analysis for cloud environment
					351	CO2	Learn to identify and describe a variety of analysis tools that will assist in processing data.		2					2								
					352	CO3	Demonstrate basic data analysis techniques and show how this analysis can contribute to a business' future growth	2						2								

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
					353	CO4	Learn how to effectively communicate the results of your analysis.		2					2									
89	13PW401	Final year Project	0-0-18	9	354	CO	To enhance Practical exposure towards solving complex engineering problems inorder to achieve Research and Industry Exposure				3	3									3	Retained from previous curriculum	Enhances Practical exposure towards solving complex engineering problems inorder to achieve employability
90	13PS401	Practice School	0-0-18	9	355	CO	To enhance Practical exposure towards solving complex engineering problems inorder to achieve Industrial Exposure				2	3					2				2	Retained from previous curriculum	Enhances Practical exposure towards solving complex engineering problems inorder to achieve employability

HOD-CSE

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Department of Computer Science and Engineering

Alumni Feedback on Curriculum

Academic Year (2013-14) Sem 1

1. To increase (Inter Discipline) open electives from two to three to gain more fundamental Knowledge in other department (or) general areas.
2. To recommend Term Paper as minor project and finally as major project to come up with publications to enhance more on Research and Publications.
3. To make Artificial Intelligence course as the core course.
4. To Introduce JAVA concepts in object oriented programming.

HOD-CSE

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

MINUTES OF DEPARTMENT ACADEMIC COMMITTEE MEETING

The Department Academic Committee Meeting was conducted in C408, Computer Science and Engineering, on 11th November 2013 at 1.00 PM.

The following Agenda Items are discussed and the resolutions passed are marked against them.

Agenda:

- To discuss feedback obtained from various stake holders.
- To discuss the syllabus and course structure of B.tech 2013 batch (Annexure-I).
- To discuss and formulate the guidelines for project based labs.

The following members were present:

1. Dr. V.Srikanth
2. Dr. V. CHANDRA PRAKASH.
3. Dr. T. V. Rao.
4. Prof. S. VENKATESWARLU.
5. Dr. K. SUBRAHMANYAM.
6. Dr. M. R. NARASING RAO.
7. Dr. D. RAJESWARA RAO.
8. Dr. M.S.R PRASAD.
9. Dr. K. V. V. SATYANARAYANA
10. Dr. V. RAMA KRISHNA
11. Dr. K. RAJA SEKHAR.
12. Mr. M. VISHNUVARDHAN.
13. Mr. K. V. D. KIRAN.
14. Naga Sabarinath (10100416)
15. V. Alakananda (10100242)
16. Himaja (10100325)

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The following points were discussed and resolved:

- Up on discussing the feedback from DAC members, it is resolved to change the course OOP through C++ to JAVA in order incorporate core JAVA skills for student.
- Up on discussion regarding project based labs, In order to enhance practical knowledge in core courses, three Mini projects are removed from Y12 Batch and resolved to include Capstone Design Project to every core course(15 courses).

All programs for 2013-14 has been framed to be in relevance to APIIC, Human Resource Development Policy, Govt. of India, National Skill Development Corporation, Govt. of India, Confederation of Indian Industries, ABET, NBA norms, O*NET and AICTE statutory norms. Thus, framed curriculum has been developed through framing of Program Educational Objectives (PEO's) which are mapped to the university Vision and Mission, which are there by disseminated into Student Outcomes (SO's) which thereby have been developed into relevant Course Outcomes (CO's).

The resolutions are forwarded to BOS committee, for the approval.

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Constituent College KLCE Accredited by NAAC with CGPA 3.76/4.00
Approved by A.I.C.T.E ± Accredited by N.B.A.± ISO 9001-2000 Certified

CONSOLIDATED REPORT ON FEEDBACK GIVEN BY ACADEMIC PEERS

2013-14

Sno	Date	Feedback	Resource person name
1	25 Apr 2014	Introduce new M.Tech. program on cloud computing.	A.S.N.Chakravarthy Professor, Dept. of CSE, JNTUK.
2	25 Apr 2014	Suggestions on new M.Tech. CSE curriculum and approved M.Tech(CSE) structure.	P.S.Avadhani, Prof. & Vice principal, AU.

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Constituent College KLCE Accredited by NAAC with CGPA 3.76/4.00
Approved by A.I.C.T.E ± Accredited by N.B.A.± ISO 9001-2000 Certified

CONSOLIDATED REPORT ON FEEDBACK GIVEN BY ACADEMIC PEERS

2013-14

	Excellent	Very Good	Good	Average	Total
Feed back(in %)	0	25	75	0	100

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DEPARTMENT OF CSE

Industry personnel feedback on the curriculum

SUMMARY REPORT - A.Y. 2013-14

S No	Date	Feedback	Industry person	Industry
1	14-06-2013	Informed the importance of Computer vision in IT industry and suggested to start a course in that	Mr. S. Siva Prasad	FactSet
2	03-07-2013	Give emphasis for Animation technologies like Maya	Mr. Ankit	CTS
3	20-12-2013	Informed the importance of Fundamentals of Information technology to all the Engineering students, He strongly recommended to start a course to non IT students for which the syllabi and material will be provided by Infosys	Mr. Pramod	Infosys
4	04-04-2014	Introduce video and audio streaming in game and graphics programming. It can be introduced as a separate course	Mr. P Ram	Wipro
5	25-04-2014	Described the cloud computing emphasis and recommended to start a new stream in M.Tech	Mr. A. Srinivasa Rao	Tech Mahindra

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CONSOLIDATED REPORT ON FEEDBACK GIVEN BY PARENTS

2013-14

SNo	Date	Feedback	Parent Name
1	2.11.2013	Counselling the students regularly is good	Mrs.M.Bhanu Rekha
2	2.11.2013	In Laboratory more no of faulty is available to clear the doubts my ward is happy	Mr.K.Soma Sekhara varma
3	2.11.2013	Discipline is good	Mr.V.V.Koteshwra Rao
4	2.11.2013	Existing Standards of Curriculam is Good	Mrs.B.Vijaya
5	4.07.2014	My ward is feeling difficult of data structures to get pass marks. Requesting to reduce the burden of course	Mr.O.Kanaka Durga
6	5.11.2014	Please introduce java course instead of oops through C++	Mrs.M.Lavanya
7	4.07.2014	Library is Good	Mr.N.Rambabu
8	5.11.2014	Please see that the student get enough support from faculty when they are practicing in the class also	Mr.M.Subba Rao

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Department of Computer Science and Engineering

Alumni Feedback on Curriculum

Academic Year (2013-14) Sem 2

1. Give more emphasis on coding and practice which will give hand during placements.
2. New stream can be included in M.Tech stream explicitly covering Cloud computing domain.

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DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

MINUTES OF DEPARTMENT ACADEMIC COMMITTEE MEETING

The Department Academic Committee Meeting was conducted in C409, Computer Science and Engineering, on 9th june 2013 at 11.00 AM.

The following Agenda Items are discussed and the resolutions passed are marked against them.

Agenda:

- To discuss feedback obtained from various stake holders.
- To discuss the syllabus and course structure of B.Tech 2013 batch (Annexure-I).

The following members were present:

1. Dr. V.Srikanth
2. Dr. V. CHANDRA PRAKASH.
3. Dr. T. V. Rao.
4. Prof. S. VENKATESWARLU.
5. Dr. K. SUBRAHMANYAM.
6. Dr. M. R. NARASING RAO.
7. Dr. D. RAJESWARA RAO.
8. Dr. M.S.R PRASAD.
9. Dr. K. V. V. SATYANARAYANA
10. Dr. V. RAMA KRISHNA
11. Dr. K. RAJA SEKHAR.
12. Mr. M. VISHNUVARDHAN.
13. Mr. K. V. D. KIRAN.
14. A. Naga Sabarinath (10100416).
15. V. Alakananda (10100242)
16. Himaja (10100325)

The following points were discussed and resolved:

- Upon discussing the feedback from DAC members, resolved to introduce two to three open electives in order to gain more fundamental Knowledge in other department (or) general areas.

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- PO's and PEO's are introduced in Y13 Batch according to Washington Accord or ABET. LTC/Active learning was introduced as per Outcome based education.
- Discussed to change the course name Mathematical methods to Mathematical Methods for Computation in order to standardize the title.
- Engineering Mathematics and Advanced Engineering Mathematics are renamed as Linear algebra and Multivariate Calculus, Differential Equations Respectively, as the course name should be specific.
- Upon discussing the feedback from DAC members, it is resolved to introduce Thermodynamics and Network Theory in Engineering Sciences (AICTE model Curriculum Recommendation).
- As per ACM Computer Engineering model curriculum 2004, it is recommended to include Signal Processing in Engineering Sciences.
- According to ACM knowledge area, it is suggested to change the name of Cryptography and Network Security as Information Assurance security.
- Upon discussion, it is resolved to introduced new course Simulation and Modelling as per the guidelines of ACM Curriculum.
- Upon discussing the feedback from DAC members, in order to enhance Research and Publications, it is resolved to continue the Term Paper as minor project and finally as major project to come up with publications.
- In order to implement LTC effectively, it is suggested to allot three faculty for each core course.
- In order to emphasize more on machine Learning and upcoming Technologies, it is resolved to change Artificial Intelligence from elective to core course.
- It is suggested to add the Graph theory concepts to the Data Structures Course.

All programs for 2013-14 has been framed to be in relevance to APIIC, Human Resource Development Policy, Govt. of India, National Skill Development Corporation, Govt. of India, Confederation of Indian Industries, ABET, NBA norms, O*NET and AICTE statutory norms. Thus, framed curriculum has been developed through framing of Program Educational Objectives (PEO's) which are mapped to the university Vision and Mission, which are there by disseminated into Student Outcomes (SO's) which thereby have been developed into relevant Course Outcomes (CO's).

The resolutions are forwarded to BOS committee, for the approval.

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DEPARTMENT OF COMPUTER SCIENCE ENGINEERING

R13 Annexure (B.Tech)-I

Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs) a	b	C	d	e	f	g	h	i	j	k	PSO 1	PSO 2	Type	Rationale
1	13-HS 101	English	2-0-2	3	1	CO 1	Understand the concept of Group Discussion and listen and speak effectively during the discussion.							1					2		Modified from the previous syllabus	This course helps to gain knowledge on professional communication skills
					2	CO 2	Understand and improve learners' competency in competitive English and apply the principles of grammar in real life contexts.							2					2			
					3	CO 3	Understand skimming & scanning, and apply the types of reasoning in comprehending the information.							3					1			
					4	CO 4	Understand the mechanics and application of presentation skills.						1						2			
2	13-HS-102	Language and Reasoning Skills	2-0-2	3	5	CO 1	Understand the method of identifying synonyms and antonyms and analyze the meaning of a word from the context.									1			1		New Course is Added	This course helps to gain knowledge on professional communication skills
					6	CO 2	Analyze issues and arguments in the process of critical reasoning and apply grammar rules to correct sentences.									1			1			
					7	CO 3	Apply the Concepts of basic Algebra and their importance while solving the problems									1			1			
					8	CO 4	Apply the short-cut methods on the concepts of different models in Calendars, Clocks, Blood relations and various types of arrangements.									1			1			
3	11-BS-105	Ecology & Environme	2-0-0	2	9	CO 1	Understand the importance of Environmental education and conservation of natural resources.								1				1		Modified from the previous	This cours helps in understanding the nature and respect it
					10	CO 2	Understand the importance of ecosystems and biodiversity.									1			2			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs) a	b	C	d	e	f	g	h	i	j	k	PSO 1	PSO 2	Type	Rationale
		nt			11	CO 3	Apply the environmental science knowledge on solid waste management, disaster management and EIA process.								2				1		previous syllabus	nature and respect it and how to save it.
4	13-HS-104	Human Values	2-0-0	2	12	CO1	Understand and identify the basic aspiration of human beings						1						1		New Course is Added	This course helps to interact with other human resources humanly
					13	CO2	Envisage the roadmap to fulfill the basic aspiration of human beings.						2						2			
					14	CO3	Analyze the profession and his role in this existence.						2						2			
5	13-BS -101	Linear Algebra and multivariate calculus	3-0-2	4	15	CO 1	Determine extreme values for functions of several variables					2							2		Modified from the previous syllabus	This course helps to use mathematics for computer science applications
					16	CO 2	Determine area, volume moment of inertia through multiple integrals in Cartesian or polar co ordinates.					2							2			
					17	CO 3	Apply the concepts of vector calculus to calculate the gradient, directional derivative, arc length, areas of surfaces and volume of solids in practical problems											2	2			
					18	CO 4	Obtain analytical and numerical solutions of Heat and wave equations					2							2			
6	13-BS -102	Differential Equations	3-1-0	4	19	CO-1	Formulate physical laws and relations mathematically in the form of first order differential equations and identify a method for solving and interpreting the results.					1							1		Modified from the previous syllabus	This course helps to use mathematics for computer science applications
					20	CO-2	Formulate physical laws and relations mathematically in the form of second/higher order differential equations and identify a method for solving and interpreting the results.					1							2			
					21	CO-3	Provide solutions for Fourier series of periodic/non-periodic phenomenon in models involving differential equations.					1							1			
					22	CO-4	Apply numeric solution methods for a system of linear algebraic equations and application oriented matrix eigenvalue problems.					1							1			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO 1	PSO 2	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k				
					23	CO-5	Verify the solution of problems through MATLAB.											1	1			
7	13-BS- 103	Engineering Physics	3-0-2	4	24	CO 1	Understands structure of crystalline solids, kinds of crystal imperfections and appreciates structure-property relationship in crystals.			1									1		Modified from the previous syllabus	This course helps to use principles of physics in computer science applications
					25	CO 2	Understands magnetic properties of materials and identifies their role in classification soft & hard magnetic materials having specific engineering applications.			1									1			
					26	CO 3	Understands thermal and mechanical properties of materials, heat treatment methods for changing the microstructure of materials and responses of materials subjected to load.			1									1			
					27	CO 4	Understands the role of electronic energy band structures of solids in governing various electrical and optical properties of materials.			1									1			
8	11-BS -104	Engineering Chemistry	3-0-2	4	28	CO 1	Describe some important design considerations in choosing a battery for a specific application.			1									1		Modified from the previous syllabus	This course helps to use principles of physics in computer science applications
					29	CO 2	Predict potential complications from combining various chemicals or metals in an engineering setting			1									1			
					30	CO 3	Examine water quality and select appropriate purification technique for intended problem			1									1			
					31	CO 4	Explain the role of chemical kinetics in the formation and destruction of ozone in the atmosphere and predict the connection between molecular behavior and observable physical properties.		1										1			
					32	CO-5	An ability to analyze & generate experimental skills.		1										1			
					33	CO 1	Apply the concept of sets, relations, functions, discrete structures, Sum rule and product rule,												2			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
9	13-BS-206	Discrete Mathematics	3-0-0	3	34	CO 2	Apply Count discrete event occurrences; Apply Propositional logic and First order logic to solve Problems												2		Modified from the previous syllabus	This course helps to use mathematics for computer science applications
					35	CO 3	Apply Advanced Counting Techniques,Formulate and solve recurrence relations;Apply Lattice theory												2			
					36	CO 4	Apply the concepts of graphs and trees												2			
10	13-ES- 103	Engineering Materials	3-0-0	3	37	CO 1	Understand the concepts of crystallography and crystalline imperfections in order to determine crystal structures and to identify defects in crystals			1									1		Modified from the previous syllabus	This course helps to use principles of materials in computer science applications
					38	CO 2	Understand electrical and optical properties of materials and apply them to know various mechanisms involved in electrical, electronic, optical, optoelectronic devices.			1									1			
					39	CO 3	Understand mechanical and thermal properties of materials and apprehend their importance in identification of materials for specific engineering applications			1									1			
					40	CO 4	Understand magnetic properties of materials and apply them to know various mechanisms involved in magnetic memory devices and transformers.			1									1			
					41	CO 5	Understand various properties of materials and apply the knowledge to execute the related experiments to get hands on experience and also to develop some inter disciplinary projects.			1									1			
					42	CO-1	Understand and apply the fundamentals of a measurement system, characteristics, and metrology using simulation and experimentation tools.	2	2										2			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
11	13-ES- 102	Measurements	3-0-2	4	43	co-2	Understand various electrical & computer parameters, and apply different measuring techniques on various electrical parameters using simulation and experimentation tools.	2	2										2		Modified from the previous syllabus	This course helps in unerstanding basics of electrical engineering
					44	CO-3	Understand electronic & electro-physiological parameters, and apply measuring techniques on electronic parameters using simulation and experimentation tools.	2	2										2			
					45	CO-4	Understand and apply different measuring techniques on civil and mechanical parameters using simulation and experimentation tools.	2	2										2			
					46	CO-5	Apply the theoretical concepts to measure different parameters		2										2			
12	11-ES -104	Engineering Graphics with CAD	0-0-4	2	47	CO 1	Draft orthographic Projections, Isometric views ,projection of planes, Manually and prepare Models in workshop by using drawings.											2	2		Modified from the previous syllabus	This course helps use of engineering graphics in computer graphics skill development
					48	CO 2	Draftorhtographic projections ,isometric views , projection of planes using Autocad. Draft projection of solids Manually and by using AutoCAD and prepare Models in workshop by using different workshop trades											2	2			
					49	CO 3	Draft Development of surfaces of solid and sections of solid Manually												2			
					50	CO 4	Practicing house wiring through Auto Cad											2	2			
					51	5	Develop 2D & 3D components using Auto Cad Software											2	2			
13	13-ES -105	Workshop Practice	0-0-4	2	52	CO 1	Hands on practice on wood working operation using hand tools												2		Modified from the previous syllabus	helps in knowing fundamentals of work shop practice
					53	CO 2	Hands on practice on sheet metal working.												2			
					54	CO 3	Hands on practice on moulding by preparing a sand mould												2			
					55	CO 4	Hands on practice on Soldering by mounting electronic components												2			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
14	13-ES- 101	Problem Solving through Programming	3-0-2	4	56	CO 1	Illustrate how problems are solved using computers using operators and different number types, functions.												3		Modified from the previous syllabus	Basic programming course to know and use algorithms and implement using c programming
					57	CO 2	Illustrate and use Control Flow Statements in C along with preprocessor directives and Storage classes.												3			
					58	CO 3	Interpret & Illustrate different formatted input and output along with arrays and pointers with arrays.												3			
					59	CO 4	Illustrate the use of Pointer Arithmetic along with arrays, Characters and Strings.												3			
15	13-ES -106	Engineering Mechanics	3-0-2	4	60	CO 1	Apply the concept of forces, governing static equations and analyze planer system of forces. Apply different analytical methods on spatial system of forces and analyzing them	2											2		Modified from the previous syllabus	helps in understand enginnering mechanics
					61	CO 2	Understanding the concepts of planar and non-planar system of parallel forces and analyzing them. estiunate moment of inertia of lamina and material bodies	2											2			
					62	CO 3	Analyzing the rigid bodies under translation and rotation with and without considering forces.					1							1			
					63	CO 4	Understanding the engineering mechanics physical systems prepare and demonstrate the models with the help of mechanics concepts to solve the engineering problems					1							1			
					64	CO5	Apply the concepts of mechanics and carryout different experiments and analyze the results		2										2			
					65	CO-1	Understand the fundamentals of thermodynamic systems and processes	2											2		New	helps in understand
					66	CO-2	Apply laws of the thermodynamics and principle of entropy to engineering devices.	2											2			

Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
16	13-ES -201	Thermodynamics	3-0-0	3	67	CO-3	Analyze various air standard cycles and their performance.	2											2		New Course is Added	helps in understand thermodynamics and logic building
					68	CO-4	Evaluate the performance of fuels and combustion to various engines.		1									1	1				
					69	CO 5	Apply the theoretical concepts to conduct various experiments of thermodynamics practically and analyze the data.		2										2				
17	13-ES -205	Network Theory	3-0-2	4	70	CO 1	Understading network theory	2											2		New Course is Added	helps in understand network theory and logic building
					71	CO 2	Apply concepts of electrieal networks		2									2					
					72	CO 3	Analyse concepts of electrical networks		2										2				
					73	CO 4	Analyse concepts of electrical networks topologies	2											2				
18	13-ES -205	Signal Processing	3-0-2	4	74	CO 1	Demonstrate signals and their Spectra	2	2										2		New Course is Added	helps in understand signal analysis and logic building
					75	CO 2	Analyze discrete time systems	2	2										2			
					76	CO 3	Design filters to cater signal analysis needs											2	2			
					77	CO 4	Analyze non stationary signals in time											2	2			
					78	CO 5	Analyze non stationary signals in frequency domains											2	2			
19	13 ES 202	Object Oriented Programming	3-0-2	4	79	CO1	The student will be able to understand Basic Concepts of OOP, apply the concepts of classes and objects through Java Language.	2				2							3		New Course is Added	Learning and Programming Language and helps in Skill Development
					80	CO2	The student will be able to apply the concepts of constructors, Overloading, parameter passing, access control, Inheritance.	2				2							3			
					81	CO3	The student will be able to apply Packages, Interfaces, Exception Handling.	2				2							3			
					82	CO4	The student will be able to apply I/O Streams and understand Basic Concepts of Multi -Threading	2				2							3			

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
					83	CO5	Students will be able to develop programs and projects in java.	2				2							3			
20	13 ES 204	DATA STRUCTURES	3-0-2	4	84	CO1	apply measures of efficiency to algorithms and Compare various linear data structures like Stack ADT, Queue ADT, Linked lists.	2				2							3		New Course is Added	Enhances the Skills by learning various datastructures used in storing and retrieve Data
					85	CO2	analyze and compare linear data structures and analyze different searching and hashing techniques.	2				2							3			
					86	CO3	analyze and compare various non - linear data structures like Trees and Graphs.	2				2							3			
					87	CO4	analyze and compare various sorting algorithms, to select from a range of possible options, to provide justification for that selection, and to implement the algorithm in a particular context.	2				2							3			
					88	CO5	understand and execute lab experiments and develop a small project along with his/her team members.	2			2	2							3			
21	13 cs 202	Human computer interaction	3-0-2	4	89	CO1	illustrate the discussion with clients		1	1									2		New Course is Added	Skill Development
					90	CO2	develop paradigms for interaction	1		2									2			
					91	CO3	elucidate interface design rules			2		1							2			
					92	CO4	evaluate the interface principles	1										2	2			
					93	CO5	demonstrate the usage of computer softwae to generate new lauouts											2	2			
					94	CO1	Understand the basic concepts of operating system, OS structure and process concepts.	1				1							2			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
22	13 CS 203	Operating Systems	3-0-2	4	95	CO2	Apply the concepts Process Scheduling algorithms and Process Synchronization Problems.	2				2							2		New Course is Added	Basic management of computer system taught for skill dvelopment
					96	CO3	Solve the concept of the Deadlock, Memory Management and Virtual Memory Concepts.	2				2							2			
					97	CO4	Demonstrate file system interface, structure, file allocation methods, free space management and threads.	1				1							2			
					98	CO5	Create and develop a project along with his/her team members.					3							2			
23	13 CS 20	Data Base Management System	3-0-2	4	99	CO1	Explain the advantages of DBMS, its Characteristics, Concepts and ER-Model.	1											3		Modified from the previous syllabus	coding and data retrival used in application development is taught for employability and skill development
					100	CO2	Demonstrate Relational Database using SQL detailing the role of Relational Algebra and Relational Calculus	2											3			
					101	CO3	Illustrate the normal forms of Relational DBMS detailing the process of normalization.					2							3			
					102	CO4	Examine Transaction Management, Concurrency Control, File Organizations, Indexing, and Storing data.					2							3			
					103	CO5	Create and Access Data Base for given Applications		2										3			
					104	CO1	Understand OSI and TCP/IP Models and basics of physical layer and their issues	1											2			
					105	CO2	Demonstrate Data Link layer issues and medium access control sub layers concepts					2							2			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
24	13 CS 205	Computer Networks	3-0-2	4	106	CO3	Analyze and implement the algorithms of network and transport layers and concerned services					2							2		New Course is Added	Basic principles of networking is taught for skill dvelopment
					107	CO4	Evaluate and execute the concepts of TCP ,UDP and the application layer conceptions					3							2			
					108	CO5	Demonstrate the basic concepts of protocols and their design including client/server models, connection oricnted and connection-less models					2							2			
25	11 EM 301	Internet Programming	3-0-2	4	109	CO1	Describe and Illustrate the concepts of HTML tags, and CSS through an application , DHTML, JavaScript functions	1				2							3		Retained from previous syllabus	All modern webbased development taught for Skill Development
					110	CO2	Describe Java fundamentals and inheritance property and polymorphism in java	1				2							3			
					111	CO3	Develop java programs using Encapsulation property and Exception handling	1				2							3			
					112	CO4	Design java applications using multithreading, Applets, Design results processing application using JSP	1				2							3			
					113	CO5	Demonstarte java programs in computer lab	1				2							3			
26	13 cs 301	software engineering	3-0-2	4	114	CO1	illustrate different phases involved in the software development		2										3		New Course is Added	priniciples of software development taught for Skill Development
					115	CO2	explain the concepts of system modeling			2									3			
					116	CO3	design the architecure UI		2										3			
					117	CO4	demonstrate the testing strategies	1											3			
					118	CO1	Examine the space and time complexities of basic algorithms												2			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
27	13 cs 302	Design and Analysis of Algorithms	3-0-2	4	119	CO2	Demonstrate Greedy and Dynamic programming methodology for solving optimization problems		1										2		New Course is Added	fine tuning and design of algorithms for the requirement for skill development
					120	CO3	Apply back tracking and branch and bound methodology for searching same state space trees					2							2			
					121	CO4	identify the purpose of NP-hard, NP-complete hard graph problems and illustrate PRAM algorithms	1											2			
28	13CS201	Digital Logic Design& Computer Organization	3-0-2	4	122	CO1	Understand various Number systems ,Codes and their conversion procedures and Complements of numbers used in Digital Systems	1											2		New Course is Added	Enhance the skills in study towards digital circuit design and its organization towards employability
					123	CO2	Apply Boolean Identities for simplifying Boolean Expressions,Combintional and Sequential Circuis.			2									2			
					124	CO3	Understand the functionality and design the CPU functional units - control unit, registers, the arithmetic and logic unit, the instruction execution unit, and the interconnections among these components.	1											2			
					125	CO4	Understand, analyze and design main, cache and virtual memory organizations.			2									2			
					126	CO5	Demonstrate the basic concepts of Digital logic in the Laboratory				2								2			
29	13 cs 303	Information Assurance and Security			127	CO1	illustrate and examine conventional cryptographic procedures	1				2							2		New Course is Added	Skill Development in leaning various Security techniques and tools
					128	CO2	illustrate and examine modern cryptographic and hash algorithms		1		2								2			
					129	CO3	demonstrate and study MAC and digital signature algorithms			1	2								2			

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
					130	CO4	demonstrate and study key management distributions			1	2	2							2			
30	13 CS 304	Artificial Intelligence	3-0-2	4	131	CO1	Students will able to apply PROLOG programming for the AI concepts					2							3		New Course is Added	fundamental principles are taught for the upcoming technologies for Skill Development
					132	CO2	Students will be able to relate methods for encoding Knowledge In computer systems	1											3			
					133	CO3	Students will be able to Interpret the Problems and search related to AI	1											3			
					134	CO4	Students will be able to infer Slot-and-filler structures and architecture of neural networks as connectionist models	1											3			
					135	CO5	Demonstrate the basic concepts of artificial intelligence in the Laboratory					2							3			
					136	CO1	Distinguish centralized computing and distributed computing detailing formal model of a distributed message passing system and the complexity measures of message passing between systems presenting important abstractions for designing distributed programs	2				2							3			
					137	CO2	Identify the leader by coordinating among processors, elaborating formal models for shared memory system and memory requirement for solving mutual exclusion problem.	2				2							3			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
31	13 CS 305	Distributed Computing	3-0-2	4	138	CO3	Utilize DSM model for inter process communication showing relationship between various types of shared objects and Identify clock synchronization problem applying tight bounds to synchronize clocks.	2				2							3		New Course is Added	basic principles of distributed software over networking environment is taught forskill dvelopment
					139	CO4	Examine the process of realizing reliable fault tolerance in distributed systemreflecting the specific type of faulty behavior and illustrate simulation that makes Byzantine failures appear to be crash failures	2				2							3			
					140	CO5	Experiment with laboratory programs and develop a small project along with his/her team members.	2				2							3			
					141	CO1	The Student will be able to define & represent finite Automata and its variations & construct Finite Automata for accepting different kinds of regular languages and their inter conversions	3	3			3							1			
					142	CO2	The student will be able to define regular sets, its properties and its rationale with pumping lemma of Regular Sets & Construct Finite Automata from regular languages and vice-versa	3	3			3							1			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
32	13 CS 306	Automata and Formal Languages	3-0-2	4	143	CO3	The Student will be able to describe grammars, its representation and the foundation for parsing mechanism of language semantics and constructing context free grammars for different languages			3									1		New Course is Added	system design concepts are taught for skill dvelopment
					144	CO4	The Student will be able to define & represent Push down Automata and its variations and Construct a PDA for real world problems and its justification with Grammars				3	3							1			
					145	CO5	The Student will be able to define Turing Machine and its variations & construct Turing Machine for unrestricted languages				3	3							1			
33	13 CS 401	Compiler Design	3-0-2	4	146	CO1	Understand the overall compiler architecture and design of Lexical Analyzer	2											2		new course introduced	useful for the skill development, good to design new languages
					147	CO2	Construct the parser using the Yacc tool	3			3								2			
					148	CO3	Analyze Syntax directed definition and its translations schemes, intermediate code	2				2							2			
					149	CO4	Apply the code optimization and generation techniques in the development of a compiler.	2				2							2			
					150	CO5	Design of simple compiler using LEX and YACC tools											3	2			
					151	CO1	Understand the History and need of Simulation and Modeling with Examples.	1				1							2			
					152	CO2	Analyze Various general principles, Statistical and Queueing Models.	2				2							2			

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
34	13 CS 402	simulation and modelling	3-0-2	4	153	CO3	Analyze Simulation of Input Modeling and Verification and Validation of the Models	2				2							2		new course introduced	Add knowledge towarrds stochastic models and helps in self development
					154	CO4	Apply the Simulation on Manufacturing and Material Handling Systems, Computer System and Computer Networks.	2				2							2			
					155	CO5	Develop the basic concepts of Simulation and Modeling	2				2						3	2			
35	13 CS 331	Data Warehousing and Mining	3-0-0	3	156	CO1	Student should be able to Understand the necessity of data preprocessing in construction of data warehouse.	1												3	New Course is Added	working on tools of data warehousing increses the chances of employability
					157	CO2	Student should be able to Analyze multidimensional data using OLAP tools to facilitate effective data mining.	2	2			s								3		
					158	CO3	Student should be able to Apply the concepts of data analysis and clustering to postulate accurate classification model for a given problem.		2	2										3		
					159	CO4	Student should be able to Recommend a methodology formining complex data types and detection of anomaly for the given Application.	3		3										3		
36	13 CS 332	Advanced Database Management Systems	3-0-0	3	160	CO1	Understand the fundamentals of query optimization and database recovery protocols.	1												3	New Course is Added	modern databses are taught for employability
					161	CO2	Analyze emerging database technologies and distributed databases.			2										3		
					162	CO3	Discriminate object oriented and relational database systems.	2												3		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO 1	PSO 2	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k				
					163	CO4	Analyze multimedia databases.			2										3		
37	11 CS 432	Big Data Analytics	3-0-0	3	164	CO1	Explain the big data that is emerging from multiple big data sources in terms of velocity, variety and veracity	1												3	new course introduced	Latest concepts big data and its analysis is taught for employability and skill development
					165	CO2	Illustrate the technologies, processes and methods for analyzing big data					2						2		3		
					166	CO3	Demonstrate the key principles of data analysis using the R tool					2								3		
					167	CO4	Examine advanced Graphs, Regression, Forecasting and Time Series models using R analytical platform.											3		3		
38	13 CS 333	Database Security	3-0-0	3	168	CO1	Understand the fundamentals of database security and security risks related to user administration	1				1								2	New Course is Added	Helps for employability in securing the database
					169	CO2	Apply password policies and security models					2								2		
					170	CO3	Analyze virtual private database using views in SQL Server 2000 and Oracle 10g and understand database auditing, auditing models	2										2		2		
					171	CO4	Apply auditing techniques on the real world problems using Oracle 10g and SQL server 2000	2										2		2		
					172	CO1	Summarize distributed databases		1											3		
					173	CO2	Analyze parallel database for searching, sorting, join and group by join.		2			2								3		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO 1	PSO 2	Type	Rationale
								a	b	c	d	e	f	g	h	i	j	k				
39	13 CS 431	Distributed Databases	3-0-0	3	174	CO3	Apply parallel database for indexing, collection of join query, scheduling, optimizing, transactions in Distributed, Grid Databases and Grid Concurrency Control.		2			2								3	new course introduced	Enhance the skills in study towards distributed databases and enhance the option towards employability
					175	CO4	Illustrate grid transaction atomicity, durability, replica management and data intensive applications.		2			2								3		
40	13 CS 334	TCP/IP Protocol suite	3-0-0	3	176	CO1	Understand the basic components of TCP Protocol suite.	1												3	New Course is Added	Internet kind of protocos are taught for Employability
					177	CO2	Understand the concepts of IP protocol ,mobile IP,P Addressing mechanisms & attacks on IP	1												3		
					178	CO3	Apply socket API to write programs related to client server communication					1							2		3		
					179	CO4	Analyze Various Networking Applications & Network management techniques via a case study/ NS2 simulator tool.					1							2		3		
41	13 CS 335	NETWORK PROGRAMMING	3-0-0	3	180	CO1	Student will be able to Understand the key components of Network Programming	1				1								3	New Course is Added	Helps towards employability as networking experts
					181	CO2	Student will be able to Apply socket API for TCP and UDP to write programs related to Client/Server communication	1				1							2	3		
					182	CO3	Student will be able to Analyze various Advanced Sockets & Networking Applications through Unix domain protocols and Routing Sockets	1				1							2	3		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO 1	PSO 2	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k				
					183	CO4	Student will be able to construct multiple threads that communicate with each other using Sun RPC	1				1						2		3		
42	13 CS 336	Routing Algorithms	3-0-0	3	184	CO1	Understand the need of Routing Algorithms, framework and principles of Network Flow Modelling	1												3	New course introduced	Helps towards employability as networking experts
					185	CO2	Analyze the routing algorithms with its working and comparison					2								3		
					186	CO3	Understand the routing achitectures and quality of service in routing	1												3		
					187	CO4	Analyze the working structure of VOIP Routing					2								3		
43	13 CS 433	High speed Optical Communication Networks	3-0-0	3	188	CO1	Understand the basics of light signals and different types of optical communication link methodologies					1								2	new course introduced	Helps towards employability as networking experts
					189	CO2	Understand the concepts of transmission characteristics of optical fibers and dispersion					1								2		
					190	CO3	Analyze the concepts of optical transmission and detectors, electro optic modulation and optical amplifier					2								2		
					191	CO4	Analyze the concept of basic networks					2								2		
					192	CO1	The course will provide knowledge of information security technology and methods for communication systems that provide services for mobile users by wireless access networks.	2												2		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
44	13 CS 434	Wireless Communications and Networking	3-0-0	3	193	CO2	Knowledge and understanding of security mechanisms and protocols in wireless communication systems, such as the topical technologies of WLAN IEEE 802.11, WAN 802.16, GSM/UMTS/LTE, Ad-hoc and sensor networks.					2										2	New course introduced	Helps towards employability as networking experts
					194	CO3	Knowledge about some of the models, design principles, mechanisms and solutions used in wireless network security to obtain authentication and key transport protocols.					2										2		
					195	CO4	Students will gain an understanding of wireless networking, protocols, and standards and security issues												2			2		
45	13 CS 337	Object Oricnted Analysis and Design	3-0-0	3	196	CO1	Understanding the concepts of UML (Unified Modeling Language)and UP(Unified Processing)		1										1			3	New Course is Added	Helps towards employability as Software Engineering experts
					197	CO2	Analyze the requirements using UML		2										2			3		
					198	CO3	Create class and objects using UML.		3										3			3		
					199	CO4	Design and implement the software using UML.		3										3			3		
46	13 CS 338	Requirement Engineering	3-0-0	3	200	CO1	Identify stakeholders and their influence on the system requirements.					2										2	New Course is Added	Helps towards employability as Software Engineering experts
					201	CO2	Identify and classify non-functional requirements, influences and constraints.	1														2		
					202	CO3	Validate requirements and Document and trace requirements using computer-based tools.	1														2		

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
					203	CO4	Infer Practice the different roles in the requirement engineering process, by working in groups analysis	1												2		
47	13 CS 435	Software Reliability	3-0-0	3	204	CO1	Explain software Reliability measures viz., mean time to failure, Failure Rate Function,	1												2	new course introduced	Helps towards employability as Software Engineering experts
					205	CO2	Illustrate software verification, validation and their relation to software reliability		1											2		
					206	CO3	Demonstrate estimation of reliability using failure data of a software product and software cost model based on software reliability		1											2		
					207	CO4	Examine a suitable reliability model for the product												2		2		
48	13 CS 339	Software Testing & Quality Assurance	3-0-0	3	208	CO 1	Ability to define software systems by using various testing principles followed by test processes by inferring test generation methods and FSM models.	1						1						2	New Course is Added	Helps towards employability as Software Engineering experts
					209	CO 2	Make test adequacy assessment with the help of various source tools and application of those techniques in commercial environment.	2				2								2		
					210	CO 3	Analyze and prepare quality management by considering governmental standards, pareto principles and up-front quality technique.	2												2		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
					211	CO 4	Relate the concepts of software safety and its relation to software quality assurance for the development of small projects.	3						3						2		
49	13-CS-430	Software Project Management	3-0-0	3	212	CO 1	Ability of the students to Develop project plans for different types projects	1												2	new course introduced	Helps towards employability as Software Engineering experts
					213	CO 2	Ability to estimate time, cost, effort, resource requirements and the quality											2		2		
					214	CO 3	Ability to undertake risk management for a given project											2		2		
					215	CO 4	Ability to handle different tools using which project management is undertaken											2		2		
50	13 CS 340	SECURE PROGRAMMING	3-0-0	3	216	CO1	Students will be able to Define the concept of Secure Systems Design, Security Goals , Secure Design Principles.	1												2	New course introduced	Helps towards employability as Security and Forensics experts
					217	CO2	Students will be able to show the Client-State Manipulation with SQL Injection for Password Security and Cross-Domain Security in Web Applications	1												2		
					218	CO3	Students will be able to Find Static Analysis as Part of the Code Review Process and procedure for Handling Input Buffer Overflow	1												2		
					219	CO4	Students will be able to List the process of Errors and Exceptions in Web Applications, XML and Web Services with the help of Privacy And Secrets Privileged Programs	1												2		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO 1	PSO 2	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k				
51	13 CS 341	CRYPTANALYSIS	3-0-0	3	220	CO1	Understand the classic ciphers and world war II ciphers	1												3	New course introduced from previous sylabus	Helps towards employability as Security and Forensics experts
					221	CO2	Understand the Stream Ciphers and Block Ciphers			2										3		
					222	CO3	Illustrate and Examine Hash Functions	1												3		
					223	CO4	Describe the Public Key System and analyze the Attacks on Public Key System			2										3		
52	13 CS 342	Elliptic curve Cryptography	3-0-0	3	224	CO1	Understand the Equations, Laws and Proofs for Elliptic Curve	1				1								2	New course introduced	Helps towards employability as Security and Forensics experts
					225	CO2	Understand the Torsion Points, Elliptic Curve Over Finite Fields		1		1									2		
					226	CO3	Understand the Discrete Logarithm Problem, Elliptic Curve Cryptography			1	1									2		
					227	CO4	Understand the Applications, Divisiors, Hyper Elliptic Curves.			1	1									2		
		Cyber			228	CO1	Illustrate Web Application (In) security, Core Defense Mechanisms, Web Application Technologies, Mapping the Application, Bypassing Client-Side Controls.	2												2	New	Helps towards
					229	CO2	Analyze Attacking Authentication, Attacking Session Management, Attacking Access Controls, Attacking Data Stores, Attacking Back-End Components.		2											2		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
53	13 CS 437	Cyber Security	3-0-0	3	230	CO3	Categorize Attacking Application Logic, Attacking Users: Cross-Site Scripting, Attacking Users: Other Techniques, Automating Customized Attacks, Exploiting Information Disclosure.		2											2	Course introduced	Employability as Security and Forensics experts
					231	CO4	Inspect Attacking Native Compiled Applications, Attacking Application Architecture, Attacking the Application Server, Finding Vulnerabilities in Source Code.		2											2		
54	13 CS 438	Trust Worthy Computing	3-0-0	3	232	CO 1	Students are able to understandimportance of system reliability using common statistical distributions and the importance of reliability models.	1	1											2	New course introduced	Helps towards employability as Security and Forensics experts
					233	CO 2	Students are able to analyzesecurity risk by using quantitative models and stopping rules in software testing.	2										2		2		
					234	CO 3	Students are able to analyze availability modeling and investigate the reliability in simple and complex embedded systems, Introduction to Microsoft TWC.	2	2											2		
					235	CO 4	Students are able to understand applications of aspect-oriented programming in trustworthy computing.	2				2								2		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
55	13 CS 343	Advanced Computer Architecture	3-0-0	3	236	CO1	Student will be able to Understand the Overview of von Neumann architecture and Pipelining	1												2	New course introduced	Helps towards employability for expertized knowledge in Multi core, Grid and Cloud Technologies
					237	CO2	Student will be able to Demonstrate Hierarchical Memory Technology	1												2		
					238	CO3	Student will be able to Explain the Instruction level parallelism	1												2		
					239	CO4	Student will be able to Analyze the Multiprocessor Architecture	2								2				2		
56	13 CS 344	Parallel Computing	3-0-0	3	240	CO1	Understand the performance improvements of uni-processor systems through pipelining, classify different parallel processing systems.	1												2	New course introduced	Helps towards employability for expertized knowledge in Multi core, Grid and Cloud Technologies
					241	CO2	Differentiate shared memory and distributed memory systems, design parallel programs through shared memory programming API 's	2												2		
					242	CO3	Apply the MPI features to solve the Distributed memory programming problems					2								2		
					243	CO4	Analyze the parallel programming concepts on PRAM computing model.					2								2		
57	11 CS 439	Cloud Computing	3-0-0	3	244	CO1	Understand Enterprise cloud computing paradigm.	1												2	New course introduced	Helps towards employability for expertized knowledge in Multi core, Grid and Cloud Technologies
					245	CO2	Understand PaaS cloud Computing Envinorments.								1					2		
					246	CO3	Analyze the performance of High performance computer on clouds.						2							2		
					247	CO4	Evaluate the data security issues in clouds.											3		2		
					248	CO1	Understand and analyze the parallel programming concepts complex systems	2												2		

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								a	b	C	d	e	f	g	h	i	j	k	1	2		
58	13 CS 345	Grid Computing	3-0-0	3	249	CO2	Apply the concepts of parallel programming using CORBA											2		2	New course introduced	Helps towards employability for expertized knowledge in Multi core, Grid and Cloud Technologies
					250	CO3	Understand and analyze the concepts of cluster computing and its deployment	2				2								2		
					251	CO4	Understand and integrate the resources and services in Metacomputing					2								2		
59	13 CS 446	High Performance Computing	3-0-0	3	252	CO1	Apply parallel programming algorithms													3	New course introduced	Helps towards employability for expertized knowledge in Multi core, Grid and Cloud Technologies
					253	CO2	Understand and apply the analytical modelling of parallel programs													3		
					254	CO3	Apply and analyze the GPU programming													3		
					255	CO4	Apply parallel programming to heterogeneous computing													3		
60	13 CS 346	2D/3D Graphics	3-0-0	3	256	CO1	Students are able to understand two-dimensional Computer Graphics	1												3	New Course is Added	Helps towards employability for expertized knowledge Graphics and Visualization
					257	CO2	Students are able to solve mathematical methods for three dimensional computer graphics	2				2								3		
					258	CO3	Students are able to compare and contrastrealistic rendering	2										2		3		
					259	CO4	Students are able to explain geometric modeling	1												3		
61	13 CS 347	Digital Image Processi	3-0-0	3	260	CO1	Describe the uses of Digital Image Processing and its Applications, Image Acquisition and Image Enhancement	1				1								3	New course introduce	Helps towards employability for expertized knowledge
					261	CO2	Analyze image enhancement algorithms such as histogram modification, contrast manipulation, edge detection and restoration		1		1									3		

Dr. D. Srinivasa Rao
Alternate HOD
Computer Science & Engineering
Koneru Lakshmaiah Education Foundation
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Green Fields, Vaddeswaram

Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
		Processing			262	CO3	Inspect how Wavelet, Multi-resolution, Compression and Morphological Image Processing are realized			1	1									3	Introduced	Graphics and Visualization
					263	CO4	Illustrate Image Segmentation, Representation and Description and Object Recognition process			2	2									3		
62	13 CS 348	Animation	3-0-0	3	264	CO1	Understand the basics and technical background of animation.	1												3	New course introduced	Helps towards employability for expertized knowledge Graphics and Visualization
					265	CO2	Analyze the techniques used for Motion capturing and types of Animations					2						2		3		
					266	CO3	Understand the concepts of fluids and image modeling					1								2		
					267	CO4	Understand the various types of animation.					1								1		
63	13 CS 441	Video and Audio Streaming	3-0-0	3	268	CO1	Understand the video formats and usage of video compression techniques.	2												3	New course introduced	Helps towards employability for expertized knowledge Graphics and Visualization
					269	CO2	Analyze the audio compression techniques and introduction to streaming media											2		2		
					270	CO3	Understand and Analyze the concepts of audio and video encoding and preprocessing					1								2		
					271	CO4	Apply stream serving and live web casting techniques for various files	2												2		
64	13 CS 442	Multimedia Technologies	3-0-0	3	272	CO1	Understand the framework and standards for multimedia communication	1												2	New course introduced	Helps towards employability for expertized knowledge Graphics and Visualization
					273	CO2	Analyze the application layer services for multimedia technologies					2								2		
					274	CO3	Understand the middleware layer streaming for media coding											1		2		

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Green Fields, VADDESWARAM

Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
					275	CO4	Apply and analyze the Network layer functionalities for multimedia technology	2				2								2		
65	13 CS 349	Soft Computing	3-0-0	3	276	CO1	Explain soft computing differentiating hard and soft computing and enumerate briefly overview of fuzzy systems , neural networks and genetic algorithms	1												2	New Course is Added	Helps towards employability for expertized knowledge in Artificial Intelligence and Neuralnetworks and fuzzy Logic
					277	CO2	Demonstrate a fuzzy controller using fuzzy logic systems		2		2									2		
					278	CO3	Interpret pattern recognition using artificial neural network		2		2									2		
					279	CO4	Interpret Genetic algorithms and operations,.		2		2									2		
66	13 CS 350	Machine Learning	3-0-0	3	280	CO1	Understand and apply the differences among the styles of learning: supervised, reinforcement, unsupervised and parametric methods	1												2	New Course is Added	Helps towards employability for expertized knowledge in Artificial Intelligence and Neuralnetworks and fuzzy Logic
					281	CO2	Comprehend probabilistic methods for learning and for classification					2								2		
					282	CO3	Analyze the non parametric methods and decision trees to take the proper decision making.	2												2		
					283	CO4	Understand rule based knowledge and Kernel machines to reduce the cost of various statistical methods , Bayesian Estimation, HMM models	2												2		
					284	CO1	Understand the concept of Essential Information Theory , Linguistic Essentials and Statistical Inference n-gram models	2												3		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	c	d	e	f	g	h	i	j	k	1	2		
67	13 CS 351	Natural Language Processing	3-0-0	3	285	CO2	Analyze Word Sense Disambiguation ,HMM and CFG	2								2				3	New Course is Added	Helps towards employability for expertized knowledge in Artificial Intelligence and Neuralnetworks and fuzzy Logic
					286	CO3	Illustrate Text and Sentence Alignment, Clustering in detail.	2								2				3		
					287	CO4	Explain Information Retrieval and Text Categorization , Perceptron in detail.	2								2		2		3		
68	13 CS 443	Multi Agent Systems	3-0-0	3	288	CO1	Students will be able to compare and contrast different types of Agents	2				2								2	new course introduced	Helps towards employability for expertized knowledge in Artificial Intelligence and Neuralnetworks and fuzzy Logic
					289	CO2	Students will be able to illustrate how agents interact with each other to perform tasks delegated to them	2				2								2		
					290	CO3	Students will be able to choose different methodologies for designing and developing an Agent	3				3								2		
					291	CO4	Students will be able to explain the various applications of Agents	2				2								2		
69	13 CS 444	Computer Vision	3-0-0	3	292	CO1	Understand Image representation and modeling	1												2	New course introduced	Helps towards employability for expertized knowledge in Artificial Intelligence and Neuralnetworks and fuzzy Logic
					293	CO2	Apply Image transformation methods					2								2		
					294	CO3	Interpret image processing algorithms	1												2		
					295	CO4	Understand face detection and recognition algorithms					1								2		
		Fundam			296	CO1	Understand the fundamentals of database management systems including data models, database architectures, and database manipulations and be able to model ER-diagrams.		2		2									2		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
70	13 OE 429	Fundamentals of Information Technology	3-0-0	3	297	CO2	Understand the theories and techniques in developing database applications and be able to write queries, functions and procedures with help of SQL				2	2								2	modified from previous syllabus	concepts of data engineering is taught for employability
					298	CO3	Understand the different normal forms and transaction issues and be familiar with managing database systems, new developments and trends in databases.		2		2									2		
71	12 OE 445	Fundamentals of DBMS	3-0-0	3	299	CO1	Understand the architectural design of a computer and various basic concepts of operating systems and programming fundamentals	2			2									2	modified from previous syllabus	overall picture of IT is taught for employability
					300	CO2	Analyze various software development methodologies and gain capability to design databases.				2	2								2		
					301	CO3	Designing various model diagrams using Unified modelling language and understand basic commands that come across in querying a database.				2	2								2		
72	13 OE 430	SELF DEVELOPMENT	3-0-0	3	302	Co1	Understanding Values, Behavior and Attitudes						2							2	New course introduced	Builds Personality ethics and Values and helps in employment
					303	CO2	Understand and observe Observation, Introspection, Contemplation, Meditation and Concentration, Schools of Meditation						2							2		
					304	CO3	Understand Stress Management, Tips for Self-Management						2							2		
73	ME	Management Elective	3-0-0	3	305	CO	To enhance the Management Skills and to learn Professional Ethics								2					2	Retained from previous curriculum	Understand professional and ethical responsibility, inorder to achieve Management Skills

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO 1	PSO 2	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k				
74	13-AC-201	Energy & Society	Audit course	nil	306	CO 1	To Understand various aspects of Energy and its Technology						2							1	Retained from previous curriculum	d explore skills on the societa
					307	CO 2	To acquire Knowledge on the enegy audits and enhance for energy estimation								2					2		
75	13-AC-202	Employability Skills	Audit course	nil	308	CO 1	Analyze one's own strength as a speaker/ Communicator and use discretion while listening.							2					1		Introduced new course	Enhances Skills in communication whish inturn helps in achieving Employability
					309	CO 2	Apply and analyze various concepts of writing strategies in professional communication skills like, reports, resume and minutes of the meeting.							3					1			
76	13-AC-301	Advanced Employability Skills	Audit course	nil	310	CO 1	Understand the organization of the passage and also analyze the tone, attitude and style of the author.							2					1		Introduced new course	Enhances Skills to compete in competitive exams
					311	CO 2	Acquire knowledge of and apply people skills in various social organizational and corporate ambiences.						2						2			
77	13- TP-401	Term Paper	0-0-4	2	312	CO	To enhance Practical exposure towards solving complex engineering problems inorder to achieve Research Exposure					2					2			2	Retained from previous curriculum	Enhances Practical exposure towards solving complex engineering problems inorder to achieve employability
78	13-MP401	Minor project	0-0-6	3	313	CO	To enhance Practical exposure towards solving complex engineering problems inorder to achieve Research and Industrial Exposure					2								2	Retained from previous curriculum	Enhances Practical exposure towards solving complex engineering problems inorder to achieve employability
79	15CS512	Computational Complexity	3-0-2	4	314	CO1	Advances in Computing deals with the theoretical foundations of information and computation and their implementation and application in computer systems	1						2							New Course is Added	Useful for the skill development, good to design new alternate
					315	CO2	It has also provided contributors with a medium in which they can explore their subjects in greater depth and breadth		2					2								

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Guntur District, Andhra Prad

Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
		Complexity																			Added	design new languages
					316	CO3	That continue to be of significant, lasting value in this rapidly expanding field.		2					2								
					317	CO4	Software Environments for Distributed systems and clouds: Parallel and Distributed Programming Models		2					2								
80	15CS513	Machine Inteligence	3-0-2	4	318	CO1	Explain the differences among the styles of learning:supervised,reinforcement, unsupervised, inductive and deductive	2												2	New Course is Added	Enhances the understanding in upcoming technologies and benefits the student to improve the employbility
					319	CO2	Comprehend probabilistic methods for learning					2								2		
					320	CO3	Understand Multivariate regression and Classification	2												2		
					321	CO4	Understand rule based knowledge and Analyze clustering	2												2		
81	15CS514	Optimization Techniques	3-0-2	4	322	CO1	Evaluate mathematical expressions by using different types of operations on numbers.	1						1							New Course is Added	To frame a mathemtical model to Research problems
					323	CO2	Simplify expressions and solve equations & inequations.					2		1								
					324	CO3	Apply different types of arithmetic expressions to solve given problems.							1								
					325	CO4	Apply methods to find areas , volumes and use graphs to reduce non-linear to linear forms.						2	1								
82	15CS515	Device Management	3-0-2	4	326	CO1	Understand the functionality and design the CPU functional units - control unit, registers, the arithmetic and logic unit, the instruction execution unit, and the interconnections among these components.			2									2	2		New Course is Added	Useful for the skill development, good to design new languages
					327	CO2	Understand, analyze and design main, cache and virtual memory organizations.			2									2	2		
					328	CO3	Understand, analyze and design different types of I/O transfer techniques			2									2	2		

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
					329	CO4	Understand the design issues of RISC and CISC CPUs and the design issues of pipeline architectures			2								2	2			
83	15CS516	Formal Methods	3-0-2	4	330	CO1	Analyzing the design issues involved in various constructs of programming languages, Design top-down and bottom-up parsers					2							2		New Course is Added	Useful for the skill development, good to design new languages
					331	CO2	Develop syntax directed translation schemes, Design and Implement LR parser					2							2			
					332	CO3	Use formal grammars to specify the syntax of Languages					2							2			
					333	CO4	Analyzing the methods and tools to define syntax and semantics of a languages											2	2			
84	13OE456	Algorithm Design and Analysis	3-0-2	4	334	CO1	Examine the space and time complexities of basic algorithms												2		New Course is Added	fine tuning and design of algorithms for the requirement for skill development
					335	CO2	Demonstrate Greedy and Dynamic programming methodology for solving optimization problems		1										2			
					336	CO3	Apply back tracking and branch and bound methodology for searching same state space trees					2							2			
					337	CO4	identify the purpose of NP-hard, NP-complete hard graph problems and illustrate PRAM algorithms	1											2			
		Principles			338	CO1	Understand the basic concepts of operating system, OS structure and process concepts.	1				1							2		New	Basic management of
					339	CO2	Apply the concepts Process Scheduling algorithms and Process Synchronization Problems.	2				2							2			

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Vaddeswaram

Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO	PSO	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k	1	2		
85	13OE455	of Operting Systems	3-0-2	4	340	CO3	Solve the concept of the Deadlock, Memory Management and Virtual Memory Concepts.	2				2							2		Course is Added	computer system taught for skill dvelopment
					341	CO4	Demonstrate file system interface, structure, file allocation methods, free space management and threads.	1				1							2			
86	13OE457	Theory of Computations	3-0-2	4	342	CO1	Understand the overall compiler architecture and design of Lexical Analyzer					2							2		New Course is Added	Enhances Practical exposure towards solving complex engineering problems inorder to achieve employability
					343	CO2	Construct the parser using the Yacc tool					2							2			
					344	CO3	Analyze Syntax directed definition and its translations schemes, intermediate code					2							2			
					345	CO4	Apply the code optimization and generation techniques in the development of a compiler.											2	2			
87	13OE458	Parallel Processing	3-0-2	4	346	CO1	Understand Algorithms and sorting networks	1	2				3								new course introduced	This course to helps in getting the knowledge of concurrent algorithms and for skll development
					347	CO2	Ability to design and analyze parallel algorithms		2				3									
					348	CO3	Apply graph and search algorithms on sorting networks	1					3									
					349	CO4	Understand arithmetic and randomized compuations	2	2				3									
88	13OE459	Data Analytics	3-0-2	4	350	CO1	Acquire the ability to identify potential sources of data and distinguish between quantitative and qualitative data	1						2							new course introduced	This course helps in data analysis for cloud environment
					351	CO2	Learn to identify and describe a variety of analysis tools that will assist in processing data.		2					2								
					352	CO3	Demonstrate basic data analysis techniques and show how this analysis can contribute to a business' future growth	2						2								

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Sno	Course Code	Course Title	L-T-P	Credits	S NO	CO NO	Description of the Course Outcome	Program Outcomes (POs)											PSO 1	PSO 2	Type	Rationale
								a	b	C	d	e	f	g	h	i	j	k				
					353	CO4	Learn how to effectively communicate the results of your analysis.		2					2								
89	13PW401	Final year Project	0-0-18	9	354	CO	To enhance Practical exposure towards solving complex engineering problems inorder to achieve Research and Industry Exposure				3	3								3	Retained from previous curriculum	Enhances Practical exposure towards solving complex engineering problems inorder to achieve employability
90	13PS401	Practice School	0-0-18	9	355	CO	To enhance Practical exposure towards solving complex engineering problems inorder to achieve Industrial Exposure				2	3					2			2	Retained from previous curriculum	Enhances Practical exposure towards solving complex engineering problems inorder to achieve employability

HOD-CSE

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Department of Computer Science and Engineering

Alumni Feedback on Curriculum

Academic Year (2013-14) Sem 1

1. To increase (Inter Discipline) open electives from two to three to gain more fundamental Knowledge in other department (or) general areas.
2. To recommend Term Paper as minor project and finally as major project to come up with publications to enhance more on Research and Publications.
3. To make Artificial Intelligence course as the core course.
4. To Introduce JAVA concepts in object oriented programming.

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Koneru Lakshmaiah Education Foundation

DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

MINUTES OF DEPARTMENT ACADEMIC COMMITTEE MEETING

The Department Academic Committee Meeting was conducted in C408, Computer Science and Engineering, on 11th November 2013 at 1.00 PM.

The following Agenda Items are discussed and the resolutions passed are marked against them.

Agenda:

- To discuss feedback obtained from various stake holders.
- To discuss the syllabus and course structure of B.tech 2013 batch (Annexure-I).
- To discuss and formulate the guidelines for project based labs.

The following members were present:

1. Dr. V.Srikanth
2. Dr. V. CHANDRA PRAKASH.
3. Dr. T. V. Rao.
4. Prof. S. VENKATESWARLU.
5. Dr. K. SUBRAHMANYAM.
6. Dr. M. R. NARASING RAO.
7. Dr. D. RAJESWARA RAO.
8. Dr. M.S.R PRASAD.
9. Dr. K. V. V. SATYANARAYANA
10. Dr. V. RAMA KRISHNA
11. Dr. K. RAJA SEKHAR.
12. Mr. M. VISHNUVARDHAN.
13. Mr. K. V. D. KIRAN.
14. Naga Sabarinath (10100416)
15. V. Alakananda (10100242)
16. Himaja (10100325)

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The following points were discussed and resolved:

- Up on discussing the feedback from DAC members, it is resolved to change the course OOP through C++ to JAVA in order incorporate core JAVA skills for student.
- Up on discussion regarding project based labs, In order to enhance practical knowledge in core courses, three Mini projects are removed from Y12 Batch and resolved to include Capstone Design Project to every core course(15 courses).

All programs for 2013-14 has been framed to be in relevance to APIIC, Human Resource Development Policy, Govt. of India, National Skill Development Corporation, Govt. of India, Confederation of Indian Industries, ABET, NBA norms, O*NET and AICTE statutory norms. Thus, framed curriculum has been developed through framing of Program Educational Objectives (PEO's) which are mapped to the university Vision and Mission, which are there by disseminated into Student Outcomes (SO's) which thereby have been developed into relevant Course Outcomes (CO's).

The resolutions are forwarded to BOS committee, for the approval.

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Approved by A.I.C.T.E ± Accredited by N.B.A.± ISO 9001-2000 Certified

CONSOLIDATED REPORT ON FEEDBACK GIVEN BY ACADEMIC PEERS

2013-14

Sno	Date	Feedback	Resource person name
1	25 Apr 2014	Introduce new M.Tech. program on cloud computing.	A.S.N.Chakravarthy Professor, Dept. of CSE, JNTUK.
2	25 Apr 2014	Suggestions on new M.Tech. CSE curriculum and approved M.Tech(CSE) structure.	P.S.Avadhani, Prof. & Vice principal, AU.

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CONSOLIDATED REPORT ON FEEDBACK GIVEN BY ACADEMIC PEERS

2013-14

	Excellent	Very Good	Good	Average	Total
Feed back(in %)	0	25	75	0	100

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KL UNIVERSITY

DEPARTMENT OF CSE

Industry personnel feedback on the curriculum

SUMMARY REPORT - A.Y. 2013-14

S No	Date	Feedback	Industry person	Industry
1	14-06-2013	Informed the importance of Computer vision in IT industry and suggested to start a course in that	Mr. S. Siva Prasad	FactSet
2	03-07-2013	Give emphasis for Animation technologies like Maya	Mr. Ankit	CTS
3	20-12-2013	Informed the importance of Fundamentals of Information technology to all the Engineering students, He strongly recommended to start a course to non IT students for which the syllabi and material will be provided by Infosys	Mr. Pramod	Infosys
4	04-04-2014	Introduce video and audio streaming in game and graphics programming. It can be introduced as a separate course	Mr. P Ram	Wipro
5	25-04-2014	Described the cloud computing emphasis and recommended to start a new stream in M.Tech	Mr. A. Srinivasa Rao	Tech Mahindra

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2013

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CONSOLIDATED REPORT ON FEEDBACK GIVEN BY PARENTS

2013-14

SNo	Date	Feedback	Parent Name
1	2.11.2013	Counselling the students regularly is good	Mrs.M.Bhanu Rekha
2	2.11.2013	In Laboratory more no of faulty is available to clear the doubts my ward is happy	Mr.K.Soma Sekhara varma
3	2.11.2013	Discipline is good	Mr.V.V.Koteshwra Rao
4	2.11.2013	Existing Standards of Curriculam is Good	Mrs.B.Vijaya
5	4.07.2014	My ward is feeling difficult of data structures to get pass marks. Requesting to reduce the burden of course	Mr.O.Kanaka Durga
6	5.11.2014	Please introduce java course instead of oops through C++	Mrs.M.Lavanya
7	4.07.2014	Library is Good	Mr.N.Rambabu
8	5.11.2014	Please see that the student get enough support from faculty when they are practicing in the class also	Mr.M.Subba Rao

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Department of Computer Science and Engineering

Alumni Feedback on Curriculum

Academic Year (2013-14) Sem 2

1. Give more emphasis on coding and practice which will give hand during placements.
2. New stream can be included in M.Tech stream explicitly covering Cloud computing domain.

HOD-CSE

PROFESSOR
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