K L UNIVERSITY

DEPARTMENT OF ELECTRIAL & ELECTRONICS ENGINEERING

Date: 25.03.2013

BOARD OF STUDIES INVITATION

Electrical & Electronics Engineering Department Board of Studies meeting is scheduled on 26.03.2013 at 10.30 AM in E104. All the BOS Members are requested to make it convenient to attend the meeting.

Agenda of the Meeting:

1. To consider the proposed 2013-14 admitted batch B.Tech Curriculum and make recommendations to the Academic council KLU for approval the same.
2. To consider the proposed 2013-14 admitted batch M.Tech Curriculum and make recommendations to the Academic council KLU for approval the same.

Following are the members present:

1. Dr.M.Venu Gopal Rao, Professor & Head, EEE Department, K L University
2. Dr. P. Linga Reddy, Professor, EEE Department, K L University
3. Dr.A.Anand Kumar, Principal & Professor, EEE Department, K L University
4. Dr. G. Kesava Rao, Professor, EEE Department, K L University
5. Dr. G. R.K.Murthy, Professor, EEE Department, K L University
6. Prof. K. Subba Rao, Professor, EEE Department, K L University
7. Dr. M.Umavani, Professor, EEE Department, K L University
8. Mrs. S.V.N.L.Lalitha, Associate Professor, EEE Department, K L University
9. Mr. K. Narasimha Raju, Associate Professor, EEE Department, K L University
10. Mr. D. Narasimha Rao, Associate Professor, EEE Department ,K L University
11. Mr. D. Seshi Reddy, Associate Professor, EEE Department ,K L University
12. Mr. R.B.R. Prakash, Associate Professor, EEE Department ,K L University
13. Mrs. K Sarada, Associate Professor, EEE Department K L University

K L UNIVERSITY

DEPARTMENT OF ELECTRIAL & ELECTRONICS ENGINEERING

Date: 26.03.2013

MINUTES OF BOARD OF STUDIES MEETING

The following are the Minutes discussed in the "**Board of Studies**" meeting held on 26.03.2013 at 10.30 AM in HOD –EEE chamber.

Agenda of the Meeting:

1. To consider the proposed 2013-14 admitted batch B.Tech Curriculum and make recommendations to the Academic council KLU for approval the same.
2. To consider the proposed 2013-14 admitted batch M.Tech Curriculum and make recommendations to the Academic council KLU for approval the same.
3. Any other points with permission of the chair.

The following members are present:

1) Dr.M.Venu Gopal Rao, Professor & Head, EEE Department, K L University
2) Dr. P. Linga Reddy, Professor, EEE Department, K L University
3) Dr.A.Anand Kumar, Principal & Professor, EEE Department, K L University
4) Dr. G. Kesava Rao, Professor, EEE Department, K L University
5) Dr. G. R.K.Murthy, Professor, EEE Department, K L University
6) Prof. K. Subba Rao, Professor, EEE Department, K L University
7) Dr. M.Umavani, Professor, EEE Department, K L University
8) Mrs. S.V.N.L.Lalitha, Associate Professor, EEE Department, K L University
9) Mr. K. Narasimha Raju, Associate Professor, EEE Department, K L University
10) Mr. D. Narasimha Rao, Associate Professor, EEE Department ,K L University
11) Mr. D. Seshi Reddy, Associate Professor, EEE Department ,K L University
12) Mr. R.B.R. Prakash, Associate Professor, EEE Department ,K L University
13) Mrs. K Sarada, Associate Professor, EEE Department K L University

The following External Members gave his valuable suggestions

1. Dr.D.V.S.S.Siva Sarma, Professor, EEE Department, NIT Warangal

Dr.M.Venu Gopal Rao welcomed the BOS Members for the "Board of Studies Meeting". The Chairman discussed about the previous BOS meeting resolutions and amendments made to the curriculum which are approved in Academic Council.

The Board of studies of the Department of Electrical & Electronics Engineering made the following resolutions:

1. Dr.M.Venu Gopal Rao put forward the modifications and added few courses in the syllabus of B.Tech programme offered for 2013-14 Batch.
2. Dr.S.V.N.L,Lalitha, PS Research Group Head put forward the modifications and added few courses in the syllabus of Power Systems specialisation courses offered for 2013-14 Batch.
3. The tabled syllabus put forwarded by research group heads were approved by the board members
4. Dr.D.V.S.S.Siva Sarma, put forward the modifications in merging the Electrical Machines courses of Three (DC Machines, AC Machines-I & AC Machines-II) to Two (DC Machines & Transformers, AC Machines)
5. Dr. G. R.K.Murthy, PED Research Group Head put forward the modifications and added few courses in the syllabus of Power Electronics & drives specialisation courses offered for 2013-14 Batch.
6. Prof. K. Subba Rao, Proposed a new specialisation named as "Digital Systems" under this specialisation, Four New Courses are introduced such as (PLD'S & FPGA, VLSI Design, Embedded Systems Design & DSP Processors)
7. The tabled syllabus put forwarded by Prof.K.Subba Rao were approved by the board members unanimously.
8. The revised curriculum structure for 2013-14 Admitted B.Tech batch was approved by all members present in the meeting. The detailed structure of 2016-17 was shown in Annexure 1.
9. The revised curriculum structure for 2013-14 Admitted M.Tech batch was approved by all members present in the meeting. The detailed structure of 2016-17 was shown in Annexure 2.
10. All the recommendations of the DAC (Department Academic Council) minutes held on 15th September 2012 were approved

BOS CHAIRMAN

Professor & Head
Dept of EEE
K L University
Green Fields, Vaddeswaram,
Dt. A.P.Pin : 522 502

K L University
Department of ELECTRICAL & ELECTRONICS Engineering
Board of Studies (BOS)

The following members attended the meeting on **26th March 2013** at 10:30 AM:

S. No	Name of the member	Designation	Member	Signature
1	Dr.M.Venu Gopal Rao	Professor, HOD	**Internal**	
2	Dr.D.V.S.S.Siva Sarma	Professor, NIT Warangal	**External**	
3	Dr.A.Anand Kumar	Professor	**Internal**	
4	Dr.G.R.K.Murthy	Professor	**Internal**	
5	Dr.P.Linga Reddy	Professor	**Internal**	
6	Dr.M.UMAVANI	Professor	**Internal**	
7	Dr. G. Kesava Rao	Professor	**Internal**	
8	Prof.K.SUBBARAO	Professor	**Internal**	
9	Mrs.S.V.N.L.LALITHA	Associate Professor	**Internal**	
10	Mr.D.Narasimha Rao	Associate Professor	**Internal**	
11	Mr. R.B.R. Prakash	Associate Professor	**Internal**	
12	Mrs. K Sarada	Associate Professor	**Internal**	
13	Mr. K. Narasimha Raju	Associate Professor	**Internal**	
14	Mr. D. Seshi Reddy	Associate Professor	**Internal**	

KL University
Department of Electrical and Electronics Engineering
2013-17 Batch -Course Articulation Matrix

Course Code	Course Title	CO NO	Description of the Course Outcome	a	b	c	d	e	f	g	h	i	j	k	Course Type	Rationale	L-T-P	Credits
13HS101	ENGLISH	CO1	Kinesics: To enable the students with the study of body language as it is an essential component of soft skills.	1											Course Retained from Earlier Curriculum	This course is retained for enriching of language skills	2-0-2	2
		CO2	Lexis: Vocabulary building	1														
		CO3	English usage and mechanics: Grammar and verbal reasoning					2										
		CO4	Office communication to improve learning skills					2										
11BS105	ECOLOGY AND ENVIRONMENT	CO1	Understand the importance of Environmental education and conservation of natural resources								1				Course Retained from Earlier Curriculum	This course is retained to give awareness on environment & sustainability	2-0-0	2
		CO2	Understand the importance of ecosystems and biodiversity.									1						
		CO3	Understand the knowledge on solid waste management										1					
		CO4	Understand the knowledge on disaster management and EIA process										1					
13BS101	LINEAR ALGEBRA AND MULTIVARIATE CALCULUS	CO1	Perform elementary operations on matrices including determination of rank and inverse, demonstrate mastery in using matrix algebra to find the solution to a linear system equations, iterative methods: Jacobi's method and Gauss - Seidal method .Determine the eigen values and eigen vectors, Cayley-Hamilton theorem and its applications, nature of the quadratic forms	2	2			2							Course Modified from Earlier Curriculum	This course is modified to develop problem solving skills	3-0-2	4
		CO2	Interpret and apply differential calculus on problems involving rate of change. Explain the geometrical interpretation and applications of Rolle's theorem and mean value theorems.Analyze the maximization and minimization problems.	2	1			2										
		CO3	Illustrate the applications of integral calculus in solving problems on area, volume, displacement, work, etc. Computing improper integrals, Beta, Gamma functions and their properties. Compute multiple integrals by changing the order of integration and change of variables such as polar, spherical and cylindrical coordinates.	2	2			2										
		CO4	Determine gradient, divergence and curl of vector point functions with their properties. Calculate the line, surface and volume integrals, Green's, Gauss divergence and Stoke's theorems and their applications.	2	2			2										
13BS103	ENGINEERING PHYSICS	CO1	Explain how ultrasonic waves are produced and detected. Determine flaws present inside a material using NDT techniques.	1											Course Modified from Earlier Curriculum	This course is modified to develop basic laws pertaining to physics	3-0-2	4
		CO2	Compute the magnetic induction produced by current carrying conductors by using Biot-Savart law & Ampere's law, Compute the Lorentz force experienced by a charged particle.	1														
		CO3	Understand different aberrations in lenses and their corrections, phenomenon of interference in thin films of uniform thickness	1														
		CO4	Explain the working of optoelectronic devices like LED, photodiode, photo transistor and solar cells, Explain the phenomenon of superconductivity and its applications	1														
13ES103	ENGINEERING MATERIALS	CO1	Understands structure of crystalline solids, kinds of crystal imperfections and appreciates structure-property relationship in crystals.	1											Course Modified from Earlier Curriculum	To enhance the knowledge of materials for designing electrical equipment	3-0-0	3
		CO2	Understands the role of electronic energy band structures of solids in governing various electrical and optical properties of materials.	1														
		CO3	Understands role of molecular vibrations in determining thermal properties of materials and deformation of materials in response to action of load, for identification of materials having specific engineering applications.	1														
		CO4	Understands spin and orbital motion of electrons in determining magnetic properties of materials and identifies their role in classification soft & hard magnetic materials having specific engineering applications.	1														
11ES104	ENGINEERING GRAPHICS WITH CAD	CO1	Draft Orthographic views, projections of planes and , solidsmanually and by using CAD software Tool (AutoCAD)						2						Course Retained from Earlier Curriculum	This course is retained for enriching the software skills in design	0-0-4	2
		CO2	Drafting Sectional views , Isometric views manually and by using AutoCAD						2									
		CO3	Development of surfaces and perspectives views manually and by using AutoCAD						2									

Professor
Dept of EEE
K L University
Green Fields, Vaddeswaram
HOD CHAIRMAN

Course Code	Course Title	CO NO	Description of the Course Outcome	a	b	c	d	e	f	g	h	i	j	k	Course Type	Rationale	L-T-P	Credits
15ES101	PROBLEM SOLVING THROUGH C - PROGRAMMING	CO1	Illustrate how problems are solved using computers and programming.	2				2							Course Modified from Earlier Curriculum	This course is modified for enhancing problem solvig skills through C language	3-0-2	4
		CO2	Interpret & Illustrate user defined C functions and different operations on list of data.	2				2										
		CO3	Implement Linear Data Structures and compare them.		2													
		CO4	Implement Binary Trees.		2													
13HS102	LANGUAGE AND REASONING SKILLS	CO1	Understand the method of identifying the meaning of words and apply them in contexts.							2					A New Course Introduced	This Course is added to enrich the students Communication skills for Employment	2-0-2	2
		CO2	Understand and analyze different cultures and the importance of empathy in cross-cultural communication.						2									
		CO3	Understand and analyze seven techniques of reading and improve reading speed.							2								
		CO4	Understand and apply writing strategies in office/ formal communication							2								
13HS104	HUMAN VALUES	CO1	realize and understand the basic aspiration, harmony in the human being.						1				1		A New Course Introduced	This Course is added to enrich the Life skills	2-0-0	2
		CO2	envisage the roadmap to fulfill the basic aspiration of human beings.															
		CO3	Analyze the profession and his role in this existence.						2				2					
		CO4	Develops holistic perception by understanding harmony in nature						2				2					
13BS102	DIFFERENTIAL EQUATIONS	CO1	Describe different situations required to model differential equations. Classify the differential equations and identify suitable solution techniques	2	2										A New Course Introduced	This Course is added to Enhance the mathematical knowledge applied to analyse physical systems	3-1-0	4
		CO2	Illustrate modeling an engineering problem as a first order ordinary differential equation (ODE) and solving it using numerical methods available viz. Taylor, Euler, modified Euler and Runge-Kutta method	2	1													
		CO3	Analyze engineering problem solutions in particular electric circuits, deflection of beams, free oscillations, forced oscillations and resonance through differential equations	2	2													
		CO3	Illustrate to model an engineering problem second order PDEs namely one dimensional wave and heat equations, two dimensional Laplace equation into PDEs and find their general solutions using C.F and P.I.	2	2													
11BS104	ENGINEERING CHEMISTRY	CO1	Examine water quality and select appropriate purification technique for intended problem			2	2								Course Retained from Earlier Curriculum	To enhance the knowledge of chemical process in designing electrical components	3-0-2	4
		CO2	Predict potential complications from combining various chemicals or metals in an engineering setting			2	2											
		CO3	Discuss fundamental aspects of electrochemistry and materials science relevant to corrosion phenomena			2	2											
		CO4	Apply phase rule, polymers, conducting polymers and nano chemistry to engineering processes				2											
15ES102	MEASURMENTS	CO1	Understand and apply the fundamentals of a measurement system, characteristics, transducers and metrology using simulation and experimentation tools.	2	2										Course Retained from Earlier Curriculum	To enhance the knowledge of measuring quantities with engineering equipments	3-0-2	4
		CO2	Understand various electrical & computer parameters, and apply different measuring techniques on various electrical parameters using simulation and experimentation tools.	2	2													
		CO3	Understand electronic & electro-physiological parameters, and apply measuring techniques on electronic parameters using simulation and experimentation tools.	2	2													
		CO4	Understand and apply different measuring techniques on civil and mechanical parameters using simulation and experimentation tools.	2	2													
13ES105	WORKSHOP PRACTICE	CO1	Project based workshop to prepare different models with the aid of workshop trades i.e., Carpentry and Tin smithy											2	Course Retained from Earlier Curriculum	To enhance the practical knowledge of	0-0-4	2
		CO2	Project based workshop to prepare different models with the aid of workshop trades i.e.,House wiring and Fitting											2				
		CO3	Project based workshop to prepare different models with the aid of workshop trades i.e.,Fitting											2				

HOS/CHAIRMAN

Course Code	Course Title	CO NO	Description of the Course Outcome	a	b	c	d	e	f	g	h	i	j	k	Course Type	Rationale	L-T-P	Credits
13ES106	ENGINEERING MECHANICS	CO1	Understand the concept of forces and apply the static equilibrium equations.	1				2							A New Course Introduced	To enrich the basic knowledge of mechanics pertaining to design of electrical machines	3-0-2	4
		CO2	Analyze co-planar and non co-planar system of forces.	2				2										
		CO3	Apply the concept of centroid & centre of gravity to determine moment of inertia.					2										
		CO4	Analyze the rigid bodies under translation and rotation with and without considering forces.	2				2		2								
13ES201	THERMODYNAMICS	CO1	Apply first law of thermodynamics to non flow systems	2				2							A New Course Introduced	To enrich the basic knowledge of thermodynamics pertaining to design of electrical machines	3-0-0	3
		CO2	Apply steady flow energy equation and second law of thermodynamics to various processes and engineering devices	2				2										
		CO3	apply principle of entropy and thermodynamic relations to thermodynamic system and process	2				2										
		CO4	Evaluate the performance of Otto, Diesel, Dual cycles and Refrigeration cycles	2				2										
13ES203	Network Theory	CO1	Understand the VI characteristics of electrical elements, solution of complex problems of DC circuits using transformations, nodal, mesh analysis and theorems.	1				1						1	A New Course Introduced	This Course is added to acquire basic knowledge on electrical networks	3-1-0	4
		CO2	Understand the fundamentals and interconnection relations of 3 – phase circuits.	1				1						1				
		CO3	Analyze the series and parallel resonance, magnetic circuits and transient analysis of DC / AC circuits.	2				2						2				
		CO4	Analyze the two port networks and solve complex networks using topology.	2				2						2				
13BS201	MATHEMATICAL METHODS	CO1	Identify different mathematical problems and reformulate them to facilitate numerical treatment using an appropriate technique.	2											Course Modified from Earlier Curriculum	This Course is modified to Enhance the mathematical knowledge applied to analyse complex problems	3-0-0	3
		CO2	Apply Fourier series, Fourier transforms and Z-transforms to analyze various signals.	2														
		CO3	Construct the probability distribution of a random variable, based on a real-world situation, and use it to compute expectation and variance and to estimate unknown parameters of populations and apply the tests of hypotheses.	2														
13ES205	SIGNAL PROCESSING	CO1	Understand the representation, manipulation and processing operations of DT signals and systems					1							A New Course Introduced	This Course is added to acquire basic knowledge on Signals and its processing	3-0-2	4
		CO2	Interpret the analysis of DT systems using Z.T.					2										
		CO3	Apply the Fourier Transformation techniques for DT sequences and their applications.					2										
		CO4	Ability to design, implementation and realization of digital filters.					2										
		CO5	Design and Implementation of the Signal processing algorithms in Matlab.											3				
13EC201	Design of Electronics Systems	CO1	Understand the fundamentals of Basic Electronic systems.	1				1						1	Course Modified from Earlier Curriculum	This Course is added to acquire basic knowledge on Design of Electronic systems and its applications	3-0-2	4
		CO2	Remembering the equivalent models of different Basic Electronic Systems.	1				1						1				
		CO3	Analyzing different types of amplifiers using OP-AMP, BJTs and JFETs.	2										2				
		CO4	Applying fundamental structures of Basic Electronic systems to design different types of Amplifiers	2										2				
13EE203	DC Machines & Transformers	CO1	Apply the basic principles of electromechanical energy conversion to electrical machines					2							A New Course Introduced	This Course is added to acquire basic knowledge on DC Machines & Transformers	3-0-2	4
		CO2	Analyze operating characteristics of various types of DC generators.					2										
		CO3	Identify various speed control methods of DC motor and evaluate this performance					2						2				
		CO4	Evaluate the performance of a transformers and selecting it for particular application.					2						2				
		CO5	Design and Implementation of the projects related machines & transformers		2													
13ES202	OBJECT ORIENTED PROGRAMMING	CO1	Understand Basic Concepts of OOP and apply the concepts of classes and objects through Java Language.	2				2							A New Course Introduced	This Course is added to Enhance the coding skills with JAVA for Employability	3-0-2	4
		CO2	Apply the concepts of constructors, Overloading, parameter passing, access control, Inheritance.	2				2										
		CO3	Apply Packages, Interfaces, Exception Handling.	2				2										
		CO4	Apply I/O Streams and understand Basic Concepts of Multi –Threading	2				2										
		CO5	Develop programs and projects in Java.	2				2										

Professor & Head
Dept of
BOS-CHAIRMAN

Course Code	Course Title	CO NO	Description of the Course Outcome	a	b	c	d	e	f	g	h	i	j	k	Course Type	Rationale	L-T-P	Credits
13EN204	DATA STRUCTURES	CO1	Student will be able to apply measures of efficiency to algorithms and Compare various linear data structures like Stack ADT, Queue ADT, Linked lists.	2				2							A New Course Introduced	This Course is added to Enhance the C Language coding for Employability	3-0-2	4
		CO2	Student will be able to analyze and compare linear data structures and analyze different searching and hashing techniques.	2				2										
		CO3	Student will be able to analyze and compare various non – linear data structures like Trees and Graphs.	2				2										
		CO4	Student will be able to 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										
		CO5	Student will be able to understand and execute lab experiments and develop a project along with his/her team members.		2													
13BS202	Complex Variables and Discrete Mathematics	CO1	Construct the analytic function and evaluate the contour integrals also represent analytic function as a series.	2											A New Course Introduced	This Course is added to Enhance the mathematical knowledge applied to analyse Discrete systems	3-0-0	3
		CO2	Evaluate the integrals involving Bessel and Legendre polynomials and Model the given phenomena as difference equation and solve it.	2														
		CO3	Use graphs and trees as tools to visualize network problems	1				1										
		CO4	Apply algorithms and theorems for construction of spanning trees	2														
13EE202	Fields & Networks	CO1	Analyze electrostatic fields of different distributions using vector algebra	2										2	A New Course Introduced	This Course is added to Enhance the Analysis of Electrical Networks and Electronic systems	3-0-2	4
		CO2	Analyze electrostatic fields of different distributions and Maxwell's equation for Time varying fields	2										2				
		CO3	Synthesize the single port network (R-L,R-C & L-C) using Foster & Cauer forms	2										2				
		CO4	Analyze Low pass & High pass M-derived and k-derived filters	2										2				
		CO5	Test the Electrical Network elements properties by designing filters	3										3				
13-EE 203	AC MACHINES	CO1	Evaluate the performance of 3-phase induction motor.		2										A New Course Introduced	This Course is added to acquire basic knowledge on AC Machines	3-0-2	4
		CO2	Analyze different speed control and starting methods of 3-phase induction machine.		2									2				
		CO3	Evaluate the performance of 3-phase alternator.		2									2				
		CO4	Illustrate the performance of 3-phase synchronous motor and 1-phase induction motor.		2									2				
		CO5	Test the performance of AC Machines.		2													
13EC205	ANALOG ELECTRONIC CIRCUIT	CO1	Design different types of feed-back amplifiers and provide general solution for real time problems					3							Course Modified from Earlier Curriculum	This Course is modified to acquire basic knowledge of analysis of electronic components	3-0-2	4
		CO2	Design different types of Oscillators and provide general solution for real time problems, and Design active filters using OPAMPs					3										
		CO3	Design other non-linear applications of OPAMPs such as precision rectifier, zero crossing detector, etc.., Design the applications of 555timer					3										
		CO4	Analyze different types of Power amplifiers					2										
		CO5	Getting a Hands-on of various devices and circuits studied during the course (Lab and LTC) in all the CDs											3				
11EE203	Electrical Power Generation and Distribution	CO1	Understand various generating stations.			1									Course Retained from Earlier Curriculum	This course is retained to impart knowledge on Genrating and distributing power	3-0-2	4
		CO2	Understand the concepts of transmission line parameters, Corona, Mechanical Sag and Insulators			2												
		CO3	Analyze the performance of overhead transmission lines and underground cables.											2				
		CO4	Analyze substation layouts and their design considerations			2												
		CO5	Test and apply knowledge obtained from Generation, transmission & distribution using any software tool or hardware											2				
11EE 304	Control Systems	CO1	Understand the mathematical representation of various systems in the contextof control engineering					1							Course Retained from Earlier Curriculum	This Course is retained to enhance the basic skills required to analyse complex systems	3-0-2	4
		CO2	Analysis of control systems in time domain & determination of stability					2										
		CO3	Analysis of control systems in frequency domain & determination of Stability					2										
		CO4	Modelling and analysis of control systems in state space domain											2				

Professor & Head
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BOS CHAIRMAN

Course Code	Course Title	CO NO	Description of the Course Outcome	a	b	c	d	e	f	g	h	i	j	k	Course Type	Rationale	L-T-P	Credits
11EE 303	Power Electronics	CO1	Select appropriate switch for a given power converter			1									Course Retained from Earlier Curriculum	This Course is retained to enhance the basic skills required to analyse Power electroniccircuits	3-0-2	4
		CO2	Evaluate the steady state performance of Basic DC-DC converters			3												
		CO3	Evaluate the performance of Basic Switch-Mode PWM Inverter			3												
		CO4	Understand and analyze the operation of Basic Phase controlled converters											2				
		CO5	Test and evaluate basic power electronic converters by using Matlab software or hardware.											2				
11EE 302	Power System Analysis	CO1	Apply the knowledge of Graph theory for modeling of power system network	2				2							Course Retained from Earlier Curriculum	This Course is retained to enhance the basic skills required to analyse the power transferred	3-0-2	4
		CO2	Apply mathematical methods for the solution of Load flow problem	2				2										
		CO3	Analysis of Symmetrical faults and application of symmetrical components	2				2										
		CO4	Analysis of power system with Unsymmetrical faults	2				2										
		CO5	Analysis of Power system problems using simulation tools	2				2										
11EE307	Electric Drives	CO1	Understand the characteristics of various electric drives suitable for particular loads	1											Course Retained from Earlier Curriculum	This Course is retained to enhance the basic skills required to analyse the control of electrical machnines	3-0-2	4
		CO2	Apply different ac-dc converters for speed control of DC Motor drives			2												
		CO3	Differentiate between stator side control and rotor side control of 3-phase Induction Motor drives		2													
		CO4	Analyze frequency control of Synchronous Motor drives for variable speed operation			2												
		CO5	Identify suitable speed control method to control the speed of a particular electric drive experimentally		2													
11-EE 402	Power System Operation & Control	CO1	Understand selecting the best generators to have Economic Dispatch		1										Course Retained from Earlier Curriculum	This Course is retained to acquire the skills required to operate and control the power	3-0-2	4
		CO2	Analyze the performance of Load Frequency Control					2										
		CO3	Analyze the performance of Automatic Voltage Regulator					2										
		CO4	Analyze rotor angle stability.									2						
		CO5	Numerical methods to solve operation of power systems					2										
11-EE 305	Power System Protection	CO1	To apply per unit system and to draw the reactance diagrams					*							Course Retained from Earlier Curriculum	This Course is retained to acquire the skills required to Protect the Power system networks	3-0-2	4
		CO2	To analyze the short circuit faults in a power system					*						*				
		CO3	To Evaluate the performance of different protective relays & Circuit breakers					*										
		CO4	To understand the concepts of lightning arresters and the neutral grounding					*										
		CO5	Test and Analyze various power system protection concepts using MATLAB					*						*				
11EC 311	Microprocessors & Microcontrollers	CO1	Understand the working of Microcontroller 8051 and Instruction Set		1										Course Retained from Earlier Curriculum	This Course is retained to acquire the coding skills required for employability	3-0-2	4
		CO2	Apply interfacing concepts of few I/O Peripherals to 8051 through programming.		2													
		CO3	Understand the working model of ARM Processor		1													
		CO4	Apply the Programming concepts of 8086		2													
		CO5	Apply the Knowledge of 8051 and working through peripherals											3				
11-EE 334	Operation of Restructured Power Systems	CO1	Students are able to analyze the concept of regulation, deregulation, market structure, market architecture, and power system old vs new.					1							Course Retained from Earlier Curriculum	This Course is retained to enrich the knowledge on restructured power systems	3-0-0	3
		CO2	Students can be able to understand Electricity sector structures, Different structure models, Bilateral & Pool markets and LMP based markets.					1						1				
		CO3	Students can be able to analyze Power wheeling transactions and marginal costing, transmission costing, Congestion management methods- market splitting, counter-trading; Effect of congestion on LMPs.					2										
		CO4	Students can be able to understand Ancillary Services and System Security in Deregulation.					1						1				

HOD/ CHAIRMAN

Course Code	Course Title	CO NO	Description of the Course Outcome	a	b	c	d	e	f	g	h	i	j	k	Course Type	Rationale	L-T-P	Credits
11-EE 338	Distribution System Planning & Automation	CO1	Understand the load forecasting, various tariffs and meters.	1				1							Course Retained from Earlier Curriculum	This Course is retained to enrich the knowledge on planning & automation of power systems	3-0-0	3
		CO2	Understand the optimal locations of substation, types of distribution feeders.	1				1										
		CO3	Understand various protection schemes and their coordination.	1				1										
		CO4	Analyze various earthing schemes and SCADA application.	1				1										
11-EE 431	Power Quality	CO1	Understand the Power Quality problems in power system and analyze the characteristics of Long interruptions					1							Course Retained from Earlier Curriculum	This Course is retained to enrich the knowledge on enhancing quality of power	3-0-0	3
		CO2	Analyze the characteristics of short interruptions.					2						2				
		CO3	Analyze the characteristics of voltage sag.					1										
		CO4	Understand and apply mitigation methods to interruptions and voltage sag problems.					3						3				
11-EE 435	HVDC & FACTS	CO1	Evaluating various HVDC transmission systems converter circuits and its control scheme	2											Course Retained from Earlier Curriculum	This Course is retained to establish the required knowledge on Power Transfer and Improving quality of power	3-0-0	3
		CO2	Analyzing FACTS devices for improving system stability		2													
		CO3	Analyzing the knowledge for improving stability and understanding the concepts of harmonics and designing of filters		2													
11-EE 381	MACHINE MODELING AND ANALYSIS	CO1	Understand the representation of every machine in two axis machine and knowing concept of reference frame theory	1				1							Course Retained from Earlier Curriculum	This Course is retained to establish the required knowledge on analysis of machines for design	3-0-0	3
		CO2	Analyze torque equation for different DC motor during steady and transient state condition	2				2										
		CO3	Analyze to obtain mathematical modeling of induction motor	2				2										
		CO4	Analyze mathematical modeling of Synchronous motor.	2				2										
11-EE 385	ADVANCED POWER ELECTRONICS	CO1	Understand various advanced inverter topologies and Analyze various PWM techniques to control them					1							Course Retained from Earlier Curriculum	This Course is retained to establish the required skill on analysis of power electronic circuits	3-0-0	3
		CO2	Analyze the performance of various DC-DC converters		2			2										
		CO3	Understand the working of various resonant converter topologies		1													
11-EE 339	Switched Mode Power Supplies	CO1	Design of non isolated DC-DC converters			3									Course Retained from Earlier Curriculum	This Course is retained to establish the required skill on analysis of SMPS for attaing employability in power electronic sector	3-0-0	3
		CO2	Design the operation of isolated DC-DC converters		3													
		CO5	Analyze the operation of Resonant converters					2										
		CO4	Develop mathematical for closed loop control techniques of DC-DC converters	3														
11-EE 332	State Estimation & System Identification	CO1	Understanding the importance of probability theory in estimating system parameters					1							Course Retained from Earlier Curriculum	This Course is retained to establish the required skill on estimation & identification of systems for employability in Automation	3-0-0	3
		CO2	Understanding the importance of stochastic process in estimating system models					1										
		CO3	Analysis of the optimal prediction and smoothing for discrete linear systems					2										
		CO4	Analysis of the optimal estimation for continuous linear systems					2										
11-EE 336	Digital Control Systems	CO1	Understand Z-transform and its properties.	1				1							Course Retained from Earlier Curriculum	This Course is retained to establish the required skill on Digital systems for employability in Automation	3-0-0	3
		CO2	Analyze systems in frequency domain using Z transform.	2				2										
		CO3	Design the basic compensators for discrete time systems using Root locus and Bilinear transformation	3				3										
		CO4	Design the state controllers for discrete-data control systems using state variable approach.	3				3										
11EE940	Nonlinear Control Systems	CO1	Understand the importance linear and nonlinear systems and describing function for various nonlinear elements.	1				1							Course Retained from Earlier Curriculum	This Course is retained to establish the required skill on Non-linear systems for employability in Control & Automation sector	3-0-0	3
		CO2	Analyze the nonlinear systems through phase trajectories .	2				2										
		CO3	Analyze the stability of nonlinear system using lyapunov stability criterion.	2				2										
		CO4	Understand the importance of fuzzy controller technique for a non-linear system	1				1										
11 EE 432	OPTIMAL CONTROL SYSTEMS	CO1	Describe first order optimality condition for optimal control problem.	1				1							Course Retained from Earlier Curriculum	This Course is retained to establish the required skill on Optimal control strategies for employability in Control & Automation sector	3-0-0	3
		CO2	Describe first order optimality condition for calculus of variations for a optimal control problem	1				1										
		CO3	Understand the importance of optimal control for linear time invariant systems by solving the corresponding Riccati equations	1				1										
		CO4	Understand and estimate the operation of optimal control techniques	1				1										

Dept of EEE
K. L. University
Green Fields
Guntur Dt.

BOS CHAIRMAN

Course Code	Course Title	CO NO	Description of the Course Outcome	a	b	c	d	e	f	g	h	i	j	k	Course Type	Rationale	L-T-P	Credits
11-EE 436	Adaptive Control Systems	CO1	Understand the importance of Adaptive control systems	1				1							Course Retained from Earlier Curriculum	This Course is retained to establish the required skill on Adaptive control strategies for employability in Control & Automation sector	3-0-0	3
		CO2	Analyze the different techniques for the identification of linear time-invariant systems.	2				2										
		CO3	Analyze the suitability of a particular adaptive control system	2				2										
		CO4	Differentiate the different approximation techniques of the system.	1				1										
11-EE 333	Solar Energy	CO1	Understanding the system geometry of solar radiation, data, solar to thermal conversion and its application	1				1							Course Retained from Earlier Curriculum	This Course is retained to establish the knowledge on Solar energy for employability in Solar manufacturing	3-0-0	3
		CO2	Analyzing the process of photovoltaic effect and PV cell characteristics	2				2										
		CO3	Analyzing the power electronic components involved and various MPPT algorithms	2				2										
		CO4	Analyzing the performance of Autonomous and Grid Linked PV systems	2				2										
11-EE 337	Wind Energy	CO1	Understand about the basic concepts of wind energy conversion system and different types of wind turbines	1								1			Course Retained from Earlier Curriculum	This Course is retained to establish the knowledge on wind energy for employability in wind power plants	3-0-0	3
		CO2	Understand the different types of control systems of wind turbine and fixed speed generating systems	1	1													
		CO3	Analyze the variable speed generating systems and modeling parameters of wind turbine rotor		2							2						
		CO4	Apply basic knowledge for classifying wind energy conversion configurations	2	2													
11-EE 341	Nuclear Energy	CO1	Understand the basic concepts in Nuclear Energy and Power Systems	1				1							Course Retained from Earlier Curriculum	This Course is retained to establish the knowledge on Nuclear energy for employability in Nuclear power plants	3-0-0	3
		CO2	Analyze the construction and operation of Nuclear Reactors	2				2										
		CO3	Analyze the construction and operation Nuclear detectors and accelerators	2				2										
		CO4	Analyze the concepts of process instrumentation and control	2				2										
11-EE 437	Energy Conservation & Audit	CO1	Understand the energy auditing methods to meet the energy conservation and various tariffs	1								1			Course Retained from Earlier Curriculum	This Course is retained to establish the knowledge on Energy Auditing for employability in Energy & Automation sector	3-0-0	3
		CO2	Apply the energy conservation techniques to power system elements	2								2						
		CO3	Apply the energy conservation opportunities in air conditioning, refrigeration and air compressor systems	2								2						
		CO4	Evaluate the energy conservation opportunities in heating systems and also in cogeneration Plants	2								2						
11EE205	Electrical Power Transmission	CO1	Determine the electrical parameters of Transmission line for different types of transmission systems with case study	1				1							Course Retained from Earlier Curriculum	This Course is retained to establish the knowledge on Energy Auditing for employability in Energy & Automation sector	3-0-2	4
		CO2	Evaluate the performance of Transmission system with mathematical models with case study	2				2										
		CO3	Analyze the mechanical design of Transmission System	2				2										
		CO4	Apply the concept of Per Unit System to solve complex problems in electrical power transmission Systems	2				2										
15ECE205	Basics of Digital Systems	CO1	Understand the representation of data using different codes and the principles of Boolean algebra to manipulate and minimize logic expressions					1							A New Course Introduced	This Course is added to acquire basic knowledge on Digital Electronic systems and its applications	3-0-2	4
		CO2	Examine the functioning of different combinational logic circuits built with logic gates and the design procedure for developing circuits like adders, decoders, code converters, etc.					2										
		CO3	Analyze the behavior of flip-flops and the operation of sequential circuits using flip-flops					2										
		CO4	Implement the design approach for creating sequential circuits like counters, shift registers, etc., and the concept of ASM charts in describing the digital systems					2										
		CO5	Implement different combinational and sequential circuits with NI MyDaq and Labview											3				
15EE330	SMART GRID TECHNOLOGIES	CO1	To understand the functioning of various devices in Smart Grids											1	A New Course Introduced	This course is intended to acquire knowledeg on Smart grid technologies for power sector applications	3-0-0	3
		CO2	To understand communication channels in Smart Grid.											1				
		CO3	To apply knowledge in Smart Metering										3	3				

BOS CHAIRMAN

Course Code	Course Title	CO NO	Description of the Course Outcome	a	b	c	d	e	f	g	h	i	j	k	Course Type	Rationale	L-T-P	Credits
13EE501	COMPUTER ARCHITECTURE	CO1	Understand the evolutionary steps of computer, complex instructions and microprogramming			1								1	A New Course Introduced	This Course is retained to establish the required skill on Computer architecture for employability in IT sector	3-0-0	3
		CO2	Understand, analyze and design main, cache and virtual memory organizations.			2												
		CO3	Understand the design issues of complex pipeline architectures and also microprocessor evolution 4004 to 4			2								2				
		CO4	Understand synchronization and sequential consistency and VLIW/EPIC			1												
13EE502	PLDs AND FPGAs	CO1	Understand Full-custom & Semi Custom design methodologies of for designing different PLD architectures.			1									A New Course Introduced	This Course is retained to establish the required skill on FPGA'S for employability in Embedded systems sector	3-0-0	3
		CO2	Study and design of combinational and sequential circuits using PLEs.			2								2				
		CO3	Study and analysis of different CPLD and FPGA architectures			2												
		CO4	Study of New generation Architectures of Programmable Logic Devices			1												
13EE503	VLSI DESIGN	CO1	To understand the VLSI fabrication process and to be able to internet with integrated circuit process engineers		1										A New Course Introduced	This Course is retained to establish the required skill on VLSI DESIGN aspects for employability in Embedded systems sector	3-0-0	3
		CO2	To analysis the theory and CV characteristics of MOS transistor		2													
		CO3	To analysis MOS gate static and switching characteristics		3													
		CO4	To design and layout MOS logic circuits											3				
		CO5	Circuit Characterization and Performance Estimation and scaling											2				
		CO6	Analyzing CMOS fault models and test principles		2									2				
13EE504	EMBEDDED SYSTEM DESIGN	CO1	Able to analyze embedded systems, its design cycle, modeling, layers of embedded systems			2								2	A New Course Introduced	This Course is retained to establish the required skill on embedded for employability in Embedded systems sector	3-0-0	3
		CO2	Able to understand Processor and Memory Organization and I/O Devices and Networks			1								1				
		CO3	Able to understand, evaluate and select appropriate software architecture and analyze the features real time operating systems.			3								3				
		CO4	Understand various embedded system design methodologies and be able to develop and demonstrate a small embedded system for a real time application.			3								3				
13EE505	DSP PROCESSORS	CO1	Understand and analyze the basic concepts of Digital Signal Processing by MATLAB and number systems	2		2							2		A New Course Introduced	This Course is retained to establish the required skill on DSP for employability in Embedded systems sector	3-0-0	3
		CO2	Understand and analyze various architectures for programmable DSP devices															
		CO3	Programming of TMS320F28335/F2812 Digital Signal Processor															
13TP401	Term Paper						2		3	3		3		2	Course retained from earlier curriculum	with this course student acquire employability in industry	0-0-4	2
13PW401	Major Project OR Industrial Practice School					3		3					3	3			0-0-24	12

Dept of EEE
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Green Fields, Vaddeswaram,
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BOS-CHAIRMAN

K L UNIVERSITY

DEPARTMENT OF ELECTRIAL & ELECTRONICS ENGINEERING

Date: 17.04.2012

BOARD OF STUDIES INVITATION

Electrical & Electronics Engineering Department Board of Studies meeting is scheduled on 18.04.2012 at 10.30 AM in E104. All the BOS Members are requested to make it convenient to attend the meeting.

Agenda of the Meeting:

1. To consider the proposed 2013-14 admitted batch B.Tech Curriculum and make recommendations to the Academic council KLU for approval the same.
2. To consider the proposed 2013-14 admitted batch M.Tech Curriculum and make recommendations to the Academic council KLU for approval the same.

Following are the members present:

1) Dr.M.Venu Gopal Rao, Professor & Head, EEE Department, K L University
2) Dr.P.V.Ramana Rao, Visiting Professor, EEE Department, AN University
3) Dr.M.Ramachandra Rao, Professor, EEE Department, K L University
4) Dr. P. Linga Reddy, Professor, EEE Department, K L University
5) Dr.A.Anand Kumar, Principal & Professor, EEE Department, K L University
6) Dr. G. Kesava Rao, Professor, EEE Department, K L University
7) Dr. G. R.K.Murthy, Professor, EEE Department, K L University
8) Prof. K. Subba Rao, Professor, EEE Department, K L University
9) Dr. M.Umavani, Professor, EEE Department, K L University
10) Mrs. S.V.N.L.Lalitha, Professor, EEE Department, K L University
11) Mr. R.B.R. Prakash, Associate Professor, EEE Department ,K L University
12) Mrs. K Sarada, Associate Professor, EEE Department K L University

K L UNIVERSITY
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
MINUTES OF DEPARTMENT ACADEMIC COMMITTEE MEETING

The Department Academic Committee meeting was conducted in E.E.E HOD chamber on **15th September 2012** at 1:00 pm

Agenda:

1. To discuss the feedbacks received from stake holders on curriculum
2. To propose the curriculum for B.Tech 2013-14 admitting batch
3. Any other points with the permission of the DAC chairman

The following members were present:

1	Dr.M.VENUGOPAL RAO	PROFESSOR & HOD
2	Dr.G.R.K.MURTHY	PROFESSOR
3	Dr.P.LINGA REDDY	PROFESSOR
4	Dr.M.RAMACHANDRA RAO	PROFESSOR
5	Dr.M.UMAVANI	PROFESSOR
6	Dr.S.LAKSHMI NARAYANA	PROFESSOR
7	Prof.K.SUBBARAO	PROFESSOR
8	Mrs.S.V.N.L.LALITHA	ASSOCIATE PROFESSOR
9	Mrs.K.SARADA	ASSOCIATE PROFESSOR
10	Mr.D.NARASIMHA RAO	ASSOCIATE PROFESSOR
11	Mr.B.KIRAN BABU	ASSISTANT PROFESSOR
12	P.SHIVA SANKAR	ASSISTANT PROFESSOR

The following points were discussed, resolved and forwarded to Board of Studies for consideration:

1. Integration of software tools to the entire core courses of the B.Tech program and the research groups' heads are given the task of identify the respective software, course wise.
2. Upon discussing the feedback from students, Removal of Signal Analysis course and Added a new course Signal Processing.(Annexure 1)
3. Upon discussing the feedback from External Faculty, RAM & ROM Designing topics to be included in Digital Systems (Annexure 1)
4. Upon discussing the feedback from Alumni, modifications suggested for the syllabus of Solar Energy course.
5. Upon discussing the feedback from Alumni, Language & Reasoning course is replaced with Technical Communication Skills (Annexure 1)
6. Upon discussing the feedback from External Faculty & Course Coordinators, the following changes were recommended to BOS
   a) Adding a topic of Frequency response analysis in Analog Electronics Circuit Design.(Annexure 1)
   b) Adding of Smart Grid technologies as a professional core course.(Annexure 1)

c) Adding of DC Machines & Transformers as a single course by merging DC machines & Transformer topics in AC Machines-1.(Annexure 1)

d) Merging of Induction & Synchronous Motors of AC Machines-1 & 2 to be a single course in curriculum.(Annexure 1)

e) Under Digital Systems Specialization, the syllabus of the Professional core courses was presented. (Annexure 1).

Computer Architecture
PLD's & FPGAs
VLSI DESIGN
Embedded Systems
DSP Processors

7. Upon considering above mentioned feedbacks, it is resolved to propose enclosed Program development documents and curriculum for B.Tech-Electrical & Electronics Engineering Program for 2013-14 for BOS approval (Annexure 1).

Dr. M. Venugopal Rao
(Head of the Department)
Dept of EEE
K L University
Green Fields, Vaddeswaram.

K L University

Department of ELECTRICAL & ELECTRONICS Engineering

Department Academic Committee (DAC)

The following members attended the meeting on **15th September 2012** at 1:00 pm:

S.No	Name of the member	Designation	Signature
1	Dr.M.Venu Gopal Rao	Professor, HOD	
2	Dr.G.R.K.Murthy	Professor	
3	Dr.P.Lingareddy	Professor	
4	Dr.M.Ramachandra Rao	Professor	
5	Dr.M.Umavani	Professor	
6	Dr.S.Lakshmi Narayana	Professor	
7	Prof.K.Subbarao	Professor	
8	Mrs.S.V.N.L.Lalitha	Associate Professor	
9	Mrs.K.Sarada	Associate Professor	
10	Mr.D.Narasimha Rao	Associate Professor	
11	Mr.B.Kiranbabu	Assistant Professor	
12	P.Shiva Sankar	Assistant Professor	

K L University

Department of ELECTRICAL & ELECTRONICS Engineering

Department Academic Committee (DAC)

The following members attended the meeting on **15th September 2012** at 1:00 pm:

S.No	Name of the member	Designation	Signature
1	Dr.M.Venu Gopal Rao	Professor, HOD	
2	Dr.G.R.K.Murthy	Professor	
3	Dr.P.Lingareddy	Professor	
4	Dr.M.Ramachandra Rao	Professor	
5	Dr.M.Umavani	Professor	
6	Dr.S.Lakshmi Narayana	Professor	
7	Prof.K.Subbarao	Professor	
8	Mrs.S.V.N.L.Lalitha	Associate Professor	
9	Mrs.K.Sarada	Associate Professor	
10	Mr.D.Narasimha Rao	Associate Professor	
11	Mr.B.Kiranbabu	Assistant Professor	
12	P.Shiva Sankar	Assistant Professor	

K L UNIVERSITY
DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING
MINUTES OF DEPARTMENT ACADEMIC COMMITTEE MEETING

The Department Academic Committee meeting was conducted in HOD Chamber, EEE Department, on 15th July 2011 at 12:30 pm

Agenda:

1. To discuss the feedbacks received from stake holders on curriculum
2. To propose the curriculum for B.Tech 2012-13 admitting batch
3. Any other points with the permission of the DAC chairman

The following members were present:

1. Dr.M.Venu Gopal Rao	Head of the Department
2. Dr.G.R.K.Murthy	Professor
3. Dr.P.LINGA REDDY	Professor
4. Dr.M.RAMACHANDRA RAO	Professor
5. Dr.M.UMAVANI	Professor Research Group Head
6. Dr.S.LAKSHMI NARAYANA	Professor Research Group Head
7. Prof.K.SUBBARAO	Professor
8. Mrs.S.V.N.L.LALITHA	Associate Professor

The following points were discussed, resolved and recommended to Board of studies for considerations:

1. Up on feedback from students & Alumni, Dr.M.Venugopal asked the DAC members to verify and propose any modifications required for the Computer based Subjects like DBMS & ORACLE for campus related activities
2. Up on considerations from Alumni Dr.M.Venugopal to verify and propose modifications for the Data Structures subject to be included in curriculum for placements
3. Up on feedback from students, it is resolved to request BOS to introduce Filter Designing and network synthesis Topics in Network Theory subject
4. HOD announced that the department is planning to offer two M.Tech specializations for the next academic year.
5. HOD requested Dr.M.UMAVANI and Power Electronics Group to study the feasibility and propose the structure of M.Tech – Power Electronics & Drives by Next meeting.
6. HOD requested Dr.P.LINGA REDDY and Power Systems Group to study the feasibility and propose the structure of M.Tech – Power Systems by Next meeting.

Dr.M.Venu Gopal Rao

(Head of the Department)

K L University

Department of ELECTRICAL & ELECTRONICS Engineering

Department Academic Committee (DAC)

The following members attended the meeting on 15th July 2011 at 12:30 pm:

S.No	Name of the member	Designation	Signature
1	Dr.M.Venu Gopal Rao	Professor, HOD	
2	Dr.G.R.K.Murthy	Professor	
3	Dr.P.LINGA REDDY	Professor	
4	Dr.M.RAMACHANDRA RAO	Professor	
5	Dr.M.UMAVANI	Professor	
6	Dr.S.LAKSHMI NARAYANA	Professor	
7	Prof.K.SUBBARAO	Professor	
8	Mrs.S.V.N.L.LALITHA	Associate Professor	