



DEPARTMENT OF ELECTRICAL & ELECTRONICS ENGINEERING

K L University

(Koneru Lakshmalah Education Foundation)

Deemed to be University Estd. u/s 3 of UGC Act. 1956

Accredited by NAAC as 'A' Grade University ❖ Approved by AICTE ❖ ISO 9001-2008 Certified

Green Fields, Vaddeswaram, Guntur District, Pincode : 522 502, Andhra Pradesh., INDIA

Phones: 0863-2399999 FAX: 0863-2388999

Date: 09.05.2016

BOARD OF STUDIES INVITATION

Electrical & Electronics Engineering Department Board of Studies meeting is scheduled on 10-05-2016 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 2016-17 admitted batch B.Tech Curriculum and make recommendations to the Academic council KLU for approval the same.
2. To consider the proposed 2016-17 admitted batch M.Tech (PED & PS) Curriculum and make recommendations to the Academic council KLU for approval the same.

Following are the members present:

1. Dr. O. Chandra Sekhar, Professor & Head, EEE Department, K L University
2. Dr. P. Linga Reddy, Professor, EEE Department, K L University
3. Dr. G. Kesava Rao, Professor, EEE Department, K L University
4. Dr. K. Subba Rao, Professor, EEE Department, K L University
5. Dr. S.V.N.L.Lalitha, Professor, EEE Department, K L University
6. Dr. K.S.Srikanth, Professor, EEE Department, K L University
7. Dr. A. Pandian, Professor, EEE Department, K L University
8. Dr. P.S. Varma, Associate Professor, EEE Department, K L University
9. Dr. M. Kiran Kumar, Associate Professor, EEE Department, K L University
10. Mr. K. Narasimha Raju, Associate Professor, EEE Department, K L University
11. Mr. D. Narasimha Rao, Associate Professor, EEE Department, K L University
12. Mr. D. Seshi Reddy, Associate Professor, EEE Department, K L University
13. Mr. J. Somlal, Associate Professor, EEE Department, K L University
14. Mr. R.B.R. Prakash, Associate Professor, EEE Department, K L University
15. Mrs. K Sarada, Associate Professor, EEE Department K L University
16. Ms P Tripura, Associate Professor, EEE Department, K L University



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MINUTES OF BOARD OF STUDIES MEETING

The following are the Minutes discussed in the "Board of Studies" meeting held on 10-05-2016 at 10.30 AM in HOD –EEE chamber.

Agenda of the Meeting:

1. To consider the proposed 2016-17 admitted batch B.Tech Curriculum and make recommendations to the Academic council KLU for approval the same.
2. To consider the proposed 2016-17 admitted batch M.Tech (PED & PS) 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. O. Chandra Sekhar, Professor & Head, EEE Department, K L University
2. Dr. P. Linga Reddy, Professor, EEE Department, K L University
3. Dr. G. Kesava Rao, Professor, EEE Department, K L University
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14. Mr. R.B.R. Prakash, Associate Professor, EEE Department, K L University
15. Mrs. K Sarada, Associate Professor, EEE Department K L University
16. Ms P Tripura, Associate Professor, EEE Department, K L University

The following External Members gave their valuable suggestions

1. Dr.D.V.S.Siva Sharma, Professor, EEE Department, NIT Warangal
2. Dr.A.Raghu Ram, Professor, EEE Department, JNTU Hyderabad
3. Mr.M.Ram Kumar, Ex-director, Regen Power Ltd.



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Dr.O.Chandra Sekhar 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. The overall core courses are recommended for modification in the 2016-17 curriculum to be in line with GATE Examination syllabus.
2. PBL (Project Based Laboratory) is restricted to only core courses for the students admitted in the 2016-17.
3. The revised curriculum structure for 2016-17 Admitted B.Tech batch was approved by all members present in the meeting. The detailed structure of 2016-17 was shown in Annexure 1.
4. All the recommendations of the DAC (Department Academic Council) minutes held on 15th November 2015 were approved.


BOS CHAIRMAN

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



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K. L. University

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Board of Studies (BOS)

The following members attended the meeting on 10th May 2016 at 10:30 AM:

S.No	Name of the member	Designation	Member	Signature
1	Dr. O. Chandra Sekhar	Professor, BOS Chairman	BOS Chairman	
2	Dr.D.V.S.Siva Sharma	Professor, NIT Warngal	External	
3	Dr.A.Raghu Ram	Professor, JNTU Hyderabad	External	
4	Mr.M.Ram Kumar	Ex-director, Regen Power Ltd.	External	
5	Dr. P. Linga Reddy	Professor	Internal	
6	Dr. G. Kesava Rao	Professor	Internal	
7	Dr. K. Subba Rao	Professor	Internal	
8	Dr. S.V.N.L.Lalitha	Professor	Internal	
9	Dr. K.S.Srikanth	Professor	Internal	
10	Dr. A. Pandian	Associate Professor	Internal	
11	Dr. P.S. Varma	Associate Professor	Internal	
12	Dr. M. Kiran Kumar	Associate Professor	Internal	
13	Mr. K. Narasimha Raju	Associate Professor	Internal	
14	Mr. D. Narasimha Rao	Associate Professor	Internal	
15	Mr. D. Seshi Reddy	Associate Professor	Internal	
16	Mr. J. Somlal	Associate Professor	Internal	
17	Mr. R.B.R. Prakash	Associate Professor	Internal	
18	Mrs. K Sarada	Associate Professor	Internal	
19	Ms P Tripura	Associate Professor	Internal	



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18	Mrs. K Sarada	Associate Professor	Internal	
19	Ms P Tripura	Associate Professor	Internal	

KL University
Department of Electrical and Electronics Engineering
2016-20 Batch Course Outcomes From I - I SEM to II-II SEM
Course Articulation Matrix

Course Code	Course Title	CO NO	Description of the Course Outcome	Ability										L-T-P	Credits			
				a	b	c	d	e	f	g	h	i	j					
15CN1001	ECOLOGY AND ENVIRONMENT	CO1	Understand the importance of Environmental education and conservation of natural resources												1	2-0-0	2	
		CO2	Understand the importance of ecosystems and biodiversity.															1
		CO3	Understand the knowledge on solid waste management, disaster management and EIA process															1
		CO4	realize and understand the basic aspiration, harmony in the human being.															1
15CN1002	HUMAN VALUES	CO1	envisage the roadmap to fulfill the basic aspiration of human beings.												1	2-0-0	2	
		CO2	analyze the profession and his role in this existence.												2			
		CO3	Remember speech sounds and apply stress and intonation rules to enhance pronunciation skills															2
		CO4	Understand writing strategies and apply those by using the basic and advanced concepts of grammar															2
15EN1101	RUDIMENTS OF COMMUNICATION SKILLS	CO1	Understand the types of texts and tone of the author.												2	2-0-0	2	
		CO2	Understand the importance of interpersonal skills															2
		CO3	Understand the method of identifying the meaning of words and apply them in contexts.															2
		CO4	Understand and analyze different cultures and the importance of empathy in cross-cultural communication.															2
15EN1202	INTER PERSONAL COMMUNICATION SKILLS	CO1	Understand and analyze seven techniques of reading and improve reading speed.												2	2-0-0	2	
		CO2	Understand and apply writing strategies in office/ formal communication															2
		CO3	Apply the various strategies of presentation Skills.															1
		CO4	Analyze the given topics and situations and applying the strategies of group discussion.															2
15 EN 2105	PROFESSIONAL COMMUNICATION SKILLS	CO1	Analyze the basic concepts of critical and analytical reading skills.												3	0-0-4	2	
		CO2	Apply the strategies of sentence formation and sentences completion.															1
		CO3	Analyze one's own strength as a speaker/communicator and use discretion while listening															2
		CO4	Apply and analyze various concepts of writing strategies in professional communication skills like, reports, resume and minutes of the meeting															3
15 EN 2204	EMPLOYABILITY SKILLS	CO1	Understand the organization of the passage and also analyze the tone, attitude and style of the author												2	0-0-4	2	
		CO2	Acquire knowledge of and apply people skills in various social organizational and corporate ambience															2
		CO3	Understand the method of identifying synonyms and antonyms and analyze the meaning of a word from the context															1
		CO4	Analyze issues and arguments in the process of critical reasoning and apply grammar rules to correct sentences															1
15 EN 3105	VERBAL AND QUANTITATIVE REASONING	CO1	Apply the concepts of basic algebra and their importance while solving the problems												1	0-0-4	2	
		CO2	Apply the short cut methods on the concepts of different models in calendars, clocks, blood relations and various types of arrangements															1
		CO3																
		CO4																

Professor & Head
 KL University
 Green Field
 BOSCHAIRMAN

Course Code	Course Title	CO NO	Description of the Course Outcome	a b c d e f g h i j k											L-T-P	Credits							
				a	b	c	d	e	f	g	h	i	j	k									
15 EN 3206	CORPORATE COMMUNICATION SKILLS	CO1	Understand and analyze the depth of a topic and use the advanced levels in creative speaking and debating.																				
		CO2	Understand and analyze various strategies involved in writing an essay and apply various styles in writing.																				
		CO3	Understand and analyze the given text critically and answer questions on critical reasoning based on the given information																				
		CO4	Acquire knowledge on various employability skills & analyze a situation and develop adaptability																				
		CO5	Apply the concepts of basic geometry and their importance while solving the problems																				
		CO6	Model physical laws and relations mathematically as a first order differential equations, solve by an appropriate method and interpret the solution.																				
15MT1001	SINGLE VARIABLE CALCULUS AND MATRIX ALGEBRA	CO1	Model physical laws and relations mathematically as a second/higher order differential equations, solve by an appropriate method and interpret the solution.																				
		CO2	Obtain the Fourier series expansions of periodic functions and use the series to solve differential equations.																				
		CO3	Model physical problems mathematically as a system of linear equations and solve them by analytical and numerical methods. Also, determine the nature of Quadratic form using Eigen values																				
		CO4	Verify the solution of problems through MATLAB.																				
		CO5	Understand the concept of forces and apply the static equilibrium equations.																				
15ME1001	MECHANICS	CO1	Analyze co-planar and non co-planar system of forces.																				
		CO2	Apply the concept of centroid & centre of gravity to determine moment of inertia.																				
		CO3	Analyze the rigid bodies under translation and rotation with and without considering forces.																				
		CO4	Understand the engineering systems to prepare and demonstrate the models with the help of mechanics concept to solve the engineering problems.																				
		CO5	Understands structure of crystalline solids, kinds of crystal imperfections and appreciates structure-property relationship in crystals.																				
15PH1001	ENGINEERING MATERIALS	CO1	Understands the role of electronic energy band structures of solids in governing various electrical and optical properties of materials.																				
		CO2	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.																				
		CO3	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.																				
		CO4	Apply the knowledge on structure and properties of materials while executing related experiments and develop some inter disciplinary projects.																				
		CO5																					

Approved by BOS


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
15CY1001	ENGINEERING CHEMISTRY	CO1	Examine water quality and select appropriate purification technique for intended problem		2	2									course modify from earlier curriculum	To enhance the knowledge of chemical process in designing electrical components	2-2-2	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 rate, polymers, conducting polymers and nano chemistry to engineering processes		2													
		CO5	An ability to analyze & generate experimental skills		2	2												
15BT1001	BIOLOGY FOR ENGINEERS	CO1	Understand the basis of Life, Living organisms and human body systems								1	1		course modify from earlier curriculum	This course introduced to set basic knowledge on biological aspects to acquire life skills	2-0-0	2	
		CO2	Understand the importance of Diet and Nutrition									1	1					
		CO3	acquire the knowledge of behaviour and nutrition microorganisms and Biosensors									1	1					
15 EE 1201	FIELDS & NETWORKS	CO1	Understand the circuit elements, kirchoff's law and theorems to solve the networks		1										course modify from earlier curriculum	This Course is added to Enhance the Analysis of Electrical Networks and Electronic systems	2-2-2	4
		CO2	Apply the procedure to determine form factor and peak factor to different symmetrical & unsymmetrical waves		2													
		CO3	Apply vector algebra to fields fundamental to analyze electric and magnetic field distributions		2													
		CO4	Apply Maxwell's equations for static and time varying fields		2													
15CS1001	C PROGRAMMING AND DATA STRUCTURES	CO1	Illustrate how problems are solved using computers and programming.		2										course modify from earlier curriculum	This course is modified for enhancing problem solving skills through C language & Data Structures	2-4-2	5
		CO2	Interpret & Illustrate user defined C functions and different operations on list of data.		2													
		CO3	Implement Linear Data Structures and compares them.		2													
		CO4	Implement Binary Trees.		2													
		CO5	Apply the knowledge obtained by the course to solve real world problems.		2	2												
15ME1002	ENGINEERING GRAPHICS	CO1	Draft Orthographic views, projections of planes and , solids manually and by using CAD software Tool (AutoCAD)												Course retained from earlier curriculum	This course is retained for enriching the software skills in design	0-0-6	3
		CO2	Drafting Sectional views , Isometric views ,development of surfaces and perspectives views manually and by using AutoCAD		2													
15EN1003	MEASUREMENTS	CO1	Project based workshop to prepare different models with the aid of workshop trades i.e., Carpentry, Tin smithy, House wiring and Fritting												course modify from earlier curriculum	To enhance the knowledge of measuring quantities with engineering equipments	0-0-4	2
		CO2	Understand and apply the fundamentals of a measurement system, characteristics, transducers and metrology using simulation and experimentation tools.		2	2												
		CO3	Understand various electrical & computer parameters, and apply different measuring techniques on various electrical parameters using simulation and experimentation tools.		2	1												
		CO4	Understand electronic & electro-physiological parameters, and apply measuring techniques on electronic parameters using simulation and experimentation tools.		2	2												

Professor & Head
 Dept of EEE
 K L University
 Greenfield, Vadodra
 Gujarat-390 015
 CHAIRMAN

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15GN1004	INTRODUCTION TO ENGINEERING	CO1	Understand the basic principles of engineering design													This course is introduced to learn the basics of all engineering concepts required for employability	2-0-2	4	
		CO2	Understand and analyze the possible career options in Engineering and develop strategic plan, career targets and mechanism to achieve the same.																
		CO3	Understand the aspects of critical thinking and problem solving in engineering																
		CO4	Apply to knowledge of critical thinking to frame real-world problems and provide basic solution approach to such problems from engineering perspective																
15 CS 2002	OBJECT ORIENTED PROGRAMMING	CO1	Understand basic concepts of OOP, introduction to classes and objects through java language and apply													This Course is retained to Enhance the coding skills with JAVA for Employability	2-2-2	4	
		CO2	Understand the concepts of constructors, overloading, parameter passing, access control, inheritance and apply																
		CO3	Understand packages, interfaces and exception handling and apply																
		CO4	Understand I/O streams & apply and understand basic concepts of multi threading																
15EC101	DIGITAL SYSTEM DESIGN	CO1	Understand numerical and character representations in digital logic, number system, data codes and the corresponding design of arithmetic circuitry													This course is added to impart the designing aspects of digital systems for employability	2-2-2	4	
		CO2	Understanding logic gates, logic theorems, boolean algebra and SOP/POS expressions																
		CO3	Combinational and sequential systems design using standard gates and flip flops and minimization methods																
		CO4	Verilog HDL design for logic gates, combinational and sequential logic functions																
		CO5	Concepts of programmable logic devices																
		CO6	Understand the functionality and design the CPU functional units- control unit, registers, the arithmetic and logic unit, the instruction execution unit, and the interconnections using these components																
15EM2001	COMPUTER ORGANIZATION AND ARCHITECTURE	CO1	Understand, analyze and design different types of I/O transfer organizations.													This course is added to acquire the knowledge on computer architecture and organization	2-2-2	4	
		CO2	Understand, analyze and design different types of I/O transfer techniques																
		CO3	Understand the design issues of RISC and CISC CPUs and the design techniques																
		CO4	Understand the design issues of pipeline architectures.																
		CO5	Understand the design issues of mutual inductance, series and parallel resonance, network topology to solve complex networks and 3- phase circuits' voltage and current relation																
15 BE103	ELECTRICAL CIRCUITS	CO1	Understand the concept of mutual inductance, series and parallel resonance, network topology to solve complex networks and 3- phase circuits' voltage and current relation													This Course is retained to acquire basic knowledge on electrical networks	2-2-2	4	
		CO2	Understand the concept of mutual inductance, series and parallel resonance, network topology to solve complex networks and 3- phase circuits' voltage and current relation																
		CO3	Understand the concept of mutual inductance, series and parallel resonance, network topology to solve complex networks and 3- phase circuits' voltage and current relation																
		CO4	Understand the concept of mutual inductance, series and parallel resonance, network topology to solve complex networks and 3- phase circuits' voltage and current relation																
		CO5	Understand the concept of mutual inductance, series and parallel resonance, network topology to solve complex networks and 3- phase circuits' voltage and current relation																

[Signature]
BOS CHAIRMAN

Course Code	Course Title	CO NO	Description of the Course Outcome	Course Type											Rationale	L-T-P	Credits												
				a	b	c	d	e	f	g	h	i	j	k															
15EC2105	ANALOG ELECTRONIC CIRCUIT DESIGN	CO1	Understand the industrial processes and organizations connected with the profession and relate classroom learning with real life situation by taking into the consideration of various design concepts. Understand the concepts of various diodes and their applications. BJT concepts as operation, biasing and frequency response. FEI concepts as operation, biasing and frequency response Feedback concepts and their analysis Concepts of various oscillators and applications Apply the basic principles of electromechanical energy conversion to electrical machines Analyze operating characteristics of various types of DC generators Identify various speed control methods of DC motor and evaluate this performance Evaluate the performance of a transformers and selecting it for particular application. Test the DC machines and transformers to evaluate their performance Able to understand and analyze the architectural features of CISC type of general purpose processor Intel 8086 microprocessor Able to understand and analyze the architectural features of CISC type of microcontroller-Intel 8051 microcontroller Able to understand and analyze the architectural features of RISC type of microcontroller-PIC microcontroller Able to program 8086 microprocessor, 8051 and PIC microcontrollers in assembly language using TASM, KEIL, MPLAB and proteus tools. Able to develop a real time application using 8051, & PIC microcontrollers through project based labs Select from all commercially available 3- ϕ IM for given application To understand the construction, operation and armature reaction of a 3- ϕ synchronous generator and identify the Understand and analyze the performance of synchronous motor by varying excitation and varying load. Test the induction machine and synchronous machine to evaluate their performance Project based workshop to prepare different models with the aid of workshop trades i.e., Carpentry, Tin smithy, House wiring and Fitting Understand various signals and model physical process using them. Acquaint with various transformation methods and their potential for applicability in various signal analysis conditions. Demonstrate sampling and its potential applications in communications, discrete signal acquisition etc.. Evaluate discrete system behaviour and its response to facilitate system design. Design a low pass discrete time system to meet noise elimination like applications Analyze non stationary signals and analyze them in both time frequency domains	3											This Course is added to acquire basic knowledge of analysis of electronic components and its design	2-2-2	4												
		CO2		3														This Course is added to acquire basic knowledge on DC Machines & Transformers	2-2-2	4									
		CO3		3																	This Course is retained to acquire the coding skills required for employability	2-2-2	4						
		CO4		3																				This Course is retained to acquire the coding skills required for employability	2-2-2	4			
		CO5		3																							This Course is added to acquire the basics knowledge of signals and its processing required	2-2-2	4
		CO6		3																									
CO1	2											This Course is added to acquire the basics knowledge of signals and its processing required	2-2-2	4															
CO2	2														This Course is added to acquire the basics knowledge of signals and its processing required	2-2-2	4												
CO3	2																	This Course is added to acquire the basics knowledge of signals and its processing required	2-2-2	4									
CO4	2																				This Course is added to acquire the basics knowledge of signals and its processing required	2-2-2	4						
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CO2	2														This Course is added to acquire the basics knowledge of signals and its processing required	2-2-2	4												
CO3	2																	This Course is added to acquire the basics knowledge of signals and its processing required	2-2-2	4									
CO4	2																				This Course is added to acquire the basics knowledge of signals and its processing required	2-2-2	4						
CO5	2																							This Course is added to acquire the basics knowledge of signals and its processing required	2-2-2	4			
CO6	2																										This Course is added to acquire the basics knowledge of signals and its processing required	2-2-2	4

Dr. M. S. Chaitanya
 HOD, DEPT. OF EEE
 GREENFIELD, V.V.

Professor & Head
 Dept of EEE
 Greenfield, V.V.
 University

Course Code	Course Title	CO NO	Description of the Course Outcome	Course Type											L-T-P	Credits				
				a	b	c	d	e	f	g	h	i	j	k						
15 EE 2206	GENERATION, TRANSMISSION & DISTRIBUTION	CO1	Understand various generating stations.	2												course modify from earlier circuit	2-2-2	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.																	
		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																	
15 EE 2207	CONTROL SYSTEMS	CO1	Students can be able to understand control system concepts such as open, closed loop systems, transfer function approach, mathematical modeling of physical systems and can understand analyze the similarities between synchros and ac generators													course modify from earlier circuit	2-2-2	4		
		CO2	Students can be able to Analyze the time domain and frequency response of physical systems																	
		CO3	Students can be able to understand and analyze stability of given transfer functions in time and Frequency domain and can be able to analyze the process of Converting state space equations into transfer function for the given model.																	
		CO4	Students can be able to design and analyze controllers																	
		CO5	Test and apply the knowledge obtained in the subject by Matlab or hardware.																	
		CO6	To analyze the short circuit faults in a power system																	
15 EE 3108	POWER SYSTEM ANALYSIS	CO1	To apply numerical methods for the solution of load flow problem													course modify from earlier circuit	2-2-2	4		
		CO2	To Select the best generators to have Economic Dispatch & to Evaluate the performance of Load Frequency Control																	
		CO3	To Understand and analyze rotor angle stability																	
		CO4	Test and Analyze various short circuit faults, load flows, economic dispatch problems, rotor angle stability problems using MATLAB																	
		CO5	Select appropriate switch for a given power converter																	
		CO6	Evaluate the steady state performance of Basic DC-DC converters																	
15 EE 3109	POWER ELECTRONICS	CO1	Evaluate the performance of Basic Switch-Mode PWM Inverter													course modify from earlier circuit	2-2-2	4		
		CO2	Understand and analyze the operation of Basic Phase controlled converters																	
		CO3	Test and evaluate basic power electronic converters by using Matlab software or hardware.																	
		CO4	To apply per unit system and to draw the reactance diagrams																	
		CO5	To analyze the short circuit faults in a power system																	
15 EE 3210	POWER SYSTEM PROTECTION	CO1	To Evaluate the performance of different protective relays & Circuit breakers													course modify from earlier circuit	2-2-2	4		
		CO2	To understand the concepts of lightning arresters and the neutral grounding																	
		CO3	Test and Analyze various power system protection concepts using MATLAB																	
		CO4	To apply per unit system and to draw the reactance diagrams																	
		CO5	To analyze the short circuit faults in a power system																	
		CO6	To Evaluate the performance of different protective relays & Circuit breakers																	

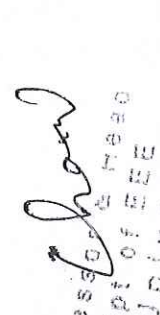
Yashwanth
BOS CHAIRMAN

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	
15 EE 3211	ELECTRIC DRIVES	CO1	Understand the concept of fundamental torque equations, Modes of operations, equivalent values of drive parameters, converters, DC motors and AC Motors.												course modify from earlier circuit	This Course is retained to enhance the basic skills required to analyse the control of electrical machines	3-2-2	4	
		CO2	Analyze the speed torque characteristics of DC Drives, Induction motor Drive and Synchronous motor Drive																
		CO3	Analyze various control techniques of DC drives and AC drives																
		CO4	Design a DC drive and simulate those circuits with design parameters and observe the output waveforms.																
		CO5	Design an AC drive and simulate those circuits with design parameters and observe the output waveforms.																
		CO6	Understand the methods to find load forecasting and various tariffs and meters																
15 EE 3251	DISTRIBUTION SYSTEM PLANNING AND AUTOMATION	CO1	Understand the optimal locations of substation capacitors and importance of protection and coordination of different protective devices.												course modify from earlier circuit	This Course is retained to enrich the knowledge on planning & automation of power systems	3-0-0	3	
		CO2	Understanding the SCADA and required components and its function																
15 EE 4155	RESTRUCTURED POWER SYSTEMS	CO1	Students are able to understand the concept of deregulation market structure, market architecture and power system old vs new																
		CO2	Students can be able to understand electricity sector structures different structure models, bilateral and pool markets and LMP based markets																
		CO3	Students can be able to understand and analyze transmission pricing methods, congestion management methods and effect of congestion on LMPs																
		CO4	Students can be able to understand ancillary services system security in deregulation																
15 EE 4156	HVDC & FACTS	CO1	Evaluating various HVDC transmission systems converter circuits and its control scheme																
		CO2	Analyzing FACTS devices for improving system stability																
		CO3	Analyzing the knowledge for improving stability and understanding the concepts of harmonics and designing of filters																
15 EE 4157	POWER QUALITY	CO1	Understand various power quality issues.																
		CO2	Analyze various power quality issues and its causes.																
		CO3	Analyze the different mitigating techniques for voltage sag and swells. Design and analyze voltage sag and swell using simulation tools.																
15 EE 4158	SMART GRID TECHNOLOGIES	CO1	To understand the functioning of various devices in Smart Grids																
		CO2	To understand communication channels in Smart Grid.																
		CO3	To apply knowledge in Smart Metering																
15 EE 3252	ADVANCED POWER ELECTRONICS	CO1	Understand various advanced inverter topologies and Analyze various PWM techniques to control them																
		CO2	Analyze the performance of various DC-DC converters																
		CO3	Understand the working of various resonant converter topologies																
15 EE 4159	ADVANCED ELECTRICAL DRIVES	CO1	Understand the Mathematical Modeling of Synchronous and Asynchronous machines																
		CO2	Analyze various advanced electric drive control techniques for special machines/techniques for Synchronous and Asynchronous machines																
		CO3	Analyze various advanced electric drive control techniques for special machines																
15 EE 4160	HVDC & FACTS	CO1	Evaluating various HVDC transmission systems converter circuits and its control scheme																
		CO2	Analyzing FACTS devices for improving system stability																
		CO3	Analyzing the knowledge for improving stability and understanding the concepts of harmonics and designing of filters																

Professor *[Signature]*
 Dept of *[Signature]*
 K. J. Somaiya Institute of Engineering & Information Technology

Course Code	Course Title	CO NO	Description of the Course Outcome	Course Type											Rationale	L-T-P	Credits		
				a	b	c	d	e	f	g	h	i	j	k					
15 EE 4161	POWER QUALITY	CO1	Understand various power quality issues.														This Course is retained to enrich the knowledge on enhancing quality of power	3-0-0	3
		CO2	Analyze various power quality issues and its causes.																
		CO3	Analyze the different mitigating techniques for voltage sag and swells.																
15 EE 4162	HYBRID ELECTRIC VEHICLES	CO1	Design and analyze voltage sag and swell using simulation tools.														This course is added to acquire knowledge on New technologies of electric vehicles required for vehicle industry	3-0-0	3
		CO2	Understand the vehicle mechanics and working of Internal combustion engines used for HEV																
		CO3	Analyze the battery and Electric Drive performance for HEV																
15 EE 3253	STATE ESTIMATION & ADAPTIVE CONTROL	CO1	Understand the control strategies for HEV														s retained to establish the required skill on estimation & identification of systems for employability in Automation	3-0-0	3
		CO2	Understanding the importance of probability in state estimation																
		CO3	Understanding and analyzing the adaptive control techniques																
15 EE 4163	DIGITAL CONTROL SYSTEMS	CO1	Evaluating the stability performance of adaptive controllers														This Course is retained to establish the required skill on Digital systems for employability in Automation	3-0-0	3
		CO2	Understanding the importance of Z-Transform in Discrete time systems																
		CO3	Evaluating the stability performance and compensating techniques for Digital control systems																
15 EE 4164	NON LINEAR CONTROL SYSTEMS	CO1	Designing of State feedback controllers and observers														This Course is retained to establish the required skill on Non-Linear systems for employability in Control & Automation sector	3-0-0	3
		CO2	Understanding and analyzing the nonlinearities in the control system																
		CO3	Evaluating the stability performance of Nonlinear systems																
15 EE 4165	OPTIMAL CONTROL SYSTEMS	CO1	Understanding and evaluating the performance of Fuzzy controllers for non linear control systems														This Course is retained to establish the required skill on Optimal control strategies for employability in Control & Automation sector	3-0-0	3
		CO2	Formulate first order optimality condition for calculus of variation and optimal control problem																
		CO3	Develop the optimal LTV system by solving Riccati equations																
15 EE 4166	ADAPTIVE CONTROL SYSTEMS	CO1	Understand and estimate the operation of optimal control techniques														This Course is retained to establish the required skill on Adaptive control strategies for employability in Control & Automation sector	3-0-0	3
		CO2	Modeling and analysis of systems by identification approaches																
		CO3	Understand and analyze the operation of adaptive control techniques mitigating the parameter variations.																
15 EE 3254	ENERGY CONSERVATION & AUDIT	CO1	Evaluate the stability performance of adaptive control system for mitigating the need for energy conservation and various tariffs														This Course is retained to establish the knowledge on Energy Auditing for employability in Energy & Automation sector	3-0-0	3
		CO2	Understand the auditing methods and their practice by case studies.																
		CO3	Apply the energy conservation techniques to motors, transformers, lighting systems.																
15 EE 4167	UTILIZATION OF ELECTRICAL ENERGY	CO1	Understand the motor ratings for different applications														This course is added to acquire the knowledge on utilization of electric power required for employability	3-0-0	3
		CO2	Analyze the characteristics and control strategies of locomotives for track electrification.																
		CO3	Understand the motor ratings for different applications																

Course Code	Course Title	CONO	Description of the Course Outcome	a	b	c	d	e	f	g	h	i	j	k	Course Type	Ratfoule	L-T-P	Credits		
15 EE 4168	SOLAR AND FUEL CELL ENERGY SYSTEMS	C01	Understand and analyze basic concepts of the solar photovoltaic energy conversion system	1											course modify from earlier curriculum	This Course is retained to establish the knowledge on Solar energy for employability in Solar manufacturing.	3-0-0	3		
		C02	Analyze the different applications of solar thermal energy	2																
		C03	Understand and analyze the fuel cell characteristics, working principle and comparison of different types of fuel cells	2																
15 EE 4169	WIND AND BIOMASS ENERGY SYSTEMS	C01	Understand and analyze basic concepts of the wind energy conversion system	1											course modify from earlier curriculum	This Course is retained to establish the knowledge on wind energy for employability in wind power plants	3-0-0	3		
		C02	Analyze the different types of wind mills, control systems and design parameters	2	2															
		C03	Apply the basic concepts of the bio energy conversion into different forms of energy	2																
15 EE 4170	NUCLEAR, GEOTHERMAL AND TIDAL ENERGY SYSTEMS	C01	Understand the basic concepts of nuclear energy conversion system	1											course modify from earlier curriculum	This Course is retained to establish the knowledge on Nuclear energy for employability in Nuclear power plants	3-0-0	3		
		C02	Analyze the geothermal energy conversion systems	2	2															
		C03	Analyze the tidal characteristics and different types of tidal power generation systems	2																
15 EE 3255	COMPUTER ARCHITECTURE	C01	Understand the evolutionary steps of computer, complex instructions and microprogramming	1																
		C02	Understand, analyze and design main, cache and virtual memory organizations.	2																
		C03	Understand the design issues of complex pipeline architectures and also microprocessor evolution 4004 to 4	2	2															
		C04	Understand synchronization and sequential consistency and VLIW/EPIC	1																
15 EE 4171	PLDs AND FPGAs	C01	Understand Full-custom & Semi Custom design methodologies of for designing different PLD architectures.	1																
		C02	Study and design of combinational and sequential circuits using PLEs.	2																
		C03	Study and analysis of different CPLD and FPGA architectures	2																
		C04	Study of New generation Architectures of Programmable Logic Devices	1																
15 EE 4172	VLSI DESIGN	C01	To understand the VLSI fabrication process and to be able to interact with integrated circuit process engineers	1																
		C02	To analyze the theory and CV characteristics of MOS transistor	2																
		C03	To analyze MOS gate static and switching characteristics	3																
		C04	To design and layout MOS logic circuits	3																
		C05	Circuit Characterization and Performance Estimation and scaling	2																
		C06	Analyzing CMOS fault models and test principles	2																
15 EE 4173	EMBEDDED SYSTEM DESIGN	C01	Able to analyze embedded systems, its design cycle, modeling, layers of embedded systems	2																
		C02	Able to understand Processor and Memory Organization and I/O Devices and Networks	1																
		C03	Able to understand, evaluate and select appropriate software architecture and analyze the features real time operating systems	3																
		C04	Understand various embedded system design methodologies and be able to develop and demonstrate a small embedded system for a real time application.	3																
15 EE 4174	DSP PROCESSORS	C01	Understand and analyze the basic concepts of Digital Signal Processing by MATLAB and number systems	2																
		C02	Understand and analyze various architectures for programmable DSP devices	2																
		C03	Programming of TMS320F28335/F2812 Digital Signal Processor	2	2															


 Professor
 K. L. University
 G. Fields, Missouri
 BOS CHAIRMAN

Course Code	Course Title	CO NO	Description of the Course Outcome										Course Type	Rationale	L-T-P	Credits		
			a	b	c	d	e	f	g	h	i	j	k					
15 IE 3250	Term Paper			3			3	3									0-0-4	2
15 IE 4049	Minor Project			3									3				0-0-4	2
15 IE 4050	Major Project OR Industrial Practice School																0-0-16	8
15 IE 4048	Industrial Training (Summer Break in II/IV year)																0-0-16	8
																		2

Joseph Kurian
 BOS CHAIRMAN

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

The Department Academic Committee meeting was conducted in HOD, Electrical & Electronics Engineering Chamber on 15th November 2015 at 1:00 pm

Agenda:

1. To discuss the feedbacks received from stake holders on curriculum
2. To propose the curriculum for B.Tech 2016-17 admitting batch
3. Any other points with the permission of the DAC chairman

The following members were present:

1. Dr.O.Chandra Sekhar, HoD & Head of DAC committee
2. Dr.A.Pandian, PED Research Group Head
3. Dr.P.Srinivas Varma, PS Research Group Head
4. Dr.P.Linga Reddy, Professor, Department of EEE
5. Dr.G.Kesava Rao, Professor, Department of EEE
6. Dr.S.V.N.L.Lalitha, Professor, Department of EEE
7. Dr.M.K.S.Sastry, Professor, Department of EEE
8. Dr.Y.P.Obulesu, Professor, Department of EEE
9. Dr.Y.Kusuma Latha, Professor, Department of EEE

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

1. The DAC discussed and resolved to recommend the removal of Project Based Labs (PBL) for all the courses mentioned below (Annexure 1).

S.No	Course Name
1	Single Variable calculus and Matrix Algebra
2	Mechanics
3	Engineering Materials
4	Engineering Chemistry
5	Biology for Engineers
6	Fields & Networks
7	Discrete Mathematics
8	Digital System Design
9	Computer Organization and Architecture
10	Electrical Circuits
11	Analog Electronic Circuit Design
12	Single Variable calculus and Matrix Algebra
13	DC Machines and Transformers

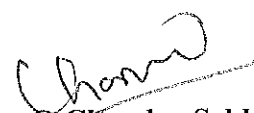
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14	Processors and Controllers
15	AC Machines
16	Signal Processing
17	Generation, Transmission & Distribution
18	Control Systems
19	Power System Analysis
20	Power Electronics
21	Power System Protection
22	Electrical Drives

2. The DAC discussed and resolved to recommend the inclusion of Project Based Labs (PBL) for all the courses mentioned below (Annexure 1).

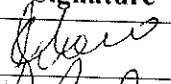
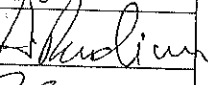
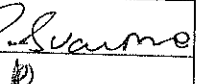

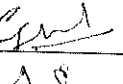
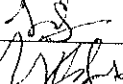
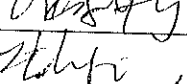
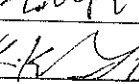

S.No	Course Name
1	C Programming & Data Structures
2	Measurements
3	Object Oriented Programming
4	Signal Analysis

3. Up on the feedback received from the External Faculty, The DAC discussed and resolved the changes as mentioned below. (Annexure 1).
- Inclusion of Case studies for Ecology & Environment subject on environmental effects
 - Inclusion of case studies on improving Power Quality Issues
 - Inclusion of Case studies for Distribution System Planning & Automation, HVDC & FACTS, Energy Conservation & Audit, Utilization of Electrical Energy, Solar & Fuel cell Energy Systems, Wind & Biomass Energy Systems, Renewable Energy Sources and Nuclear, Geothermal & Tidal Energy Systems on environmental effects.
4. Up on discussing the feedback from Industry Peers, Extra computer skill based subjects are to be added in the curriculum for enhancing more placement opportunities.
5. Upon considering above mentioned feedbacks, it is resolved to propose enclosed Program development documents and curriculum for B.Tech-Electrical Engineering Program for 2016-17 for BOS approval (Annexure 1).


Dr. O. Chandra Sekhar
 Dr. O. (Head of the Department)
 Professor & Head
 Dept of EEE
 K L University
 Green Fields,
 Guntur D.A.P.

KL University
Department of ELECTRICAL & ELECTRONICS Engineering
Department Academic Committee (DAC)

The following members attended the meeting on 15th November 2015 at 1:00 pm:

S.No	Name of the member	Designation	Signature
1	Dr.O.Chandra Sekhar	Professor, HOD	
2	Dr.A.Pandian	Professor	
3	Dr.P.Srinivas Varma	Professor	
4	Dr.P.Lingareddy	Professor	
5	Dr.G.Kesava Rao	Professor	
6	Dr.S.V.N.L.Lalitha	Professor	
7	Dr.M.K.S.Sastry	Professor	
8	Dr.Y.P.Obulesu	Professor	
9	Dr.Y.Kusuma Latha	Professor	

Amma

K L E F					
Department of Electrical & Electronics Engineering					
Department Academic Committee Meeting (12/04/2016)					
Annexure 1: Proposed B.Tech 2016-17 Course Structure					
S.No	Course Name	L-T-P	Cr	Pre-Req.	Remarks
I	-HUMANITIES & SOCIAL SCIENCES				
1	Ecology and Environment	2-0-0	2	NIL	Topic Modified: Case Studies regarding Environmental effects
2	Human Values	2-0-0	2	NIL	Nil
3	Rudiments of Communication Skills	2-0-0	2	NIL	Topic Modified: Case Studies regarding Rudiments in communication skills
4	Interpersonal Communication Skills	2-0-0	2	NIL	Topic Modified: Case Studies regarding personality skills through communication
5	Professional Communication Skills	0-0-4	2	NIL	Topic Modified: Case Studies regarding Professionalism skills through communication
6	Employability Skills	0-0-4	2	NIL	Topic Modified: Case Studies regarding Employability skills through communication
7	Verbal and Quantitative Reasoning	0-0-4	2	NIL	Nil
8	Corporate Communication Skills	0-0-4	2	NIL	Nil
II	BASIC SCIENCES				
1	Single Variable calculus and Matrix Algebra	2-2-2	4	NIL	Topic Modified: Removal of Project Based lab
2	Mechanics	2-2-2	4	NIL	Topic Modified: Removal of Project Based lab
3	Engineering Materials	2-2-2	4	NIL	Topic Modified: Removal of Project Based lab
4	Engineering Chemistry	2-2-2	4	NIL	Topic Modified: Removal of Project Based lab
5	Biology for Engineers	2-0-0	2	NIL	Topic Modified: Removal of Project Based lab
6	Fields & Networks	2-2-2	4	NIL	Topic Modified: Removal of Project Based lab
III	ENGINEERING SCIENCES				
1	C Programming & Data Structures	2-4-2	5	NIL	Topic Modified: Project Based lab Implementation
2	Engineering Graphics	0-0-6	3	NIL	Nil
3	Measurements	0-0-4	2	NIL	Topic Modified: Project Based lab Implementation
4	Introduction to Electrical & Electronics Engineering	2-0-2	3	NIL	Nil
5	Object Oriented Programming	2-2-2	4	NIL	Topic Modified: Project Based lab Implementation
6	Signal Analysis	2-2-2	4	NIL	Topic Modified: Project Based lab Implementation
7	Discrete Mathematics	2-2-2	4	NIL	Topic Modified: Removal of Project Based lab

S.No	Course Name	L-T-P	Cr	Pre-Req.	Remarks
Control Systems Specialization					
1	State Estimation & System Identification	3-0-0	3	NIL	Nil
2	Digital Control Systems	3-0-0	3	NIL	Nil
3	Non Linear Control Systems	3-0-0	3	NIL	Nil
4	Optimal Control Systems	3-0-0	3	NIL	Nil
5	Adaptive Control Systems	3-0-0	3	NIL	Nil
Energy Systems Specialization					
1	Energy Conservation & Audit	3-0-0	3	NIL	Topic Added: Case Studies regarding Environmental effects
2	Utilization of Electrical Energy	3-0-0	3	NIL	Topic Added: Case Studies regarding Environmental effects
3	Solar & Fuel cell Energy Systems	3-0-0	3	NIL	Topic Added: Case Studies regarding Environmental effects
4	Wind & Biomass Energy Systems	3-0-0	3	NIL	Topic Added: Case Studies regarding Environmental effects
5	Nuclear, Geothermal & Tidal Energy Systems	3-0-0	3	NIL	Topic Added: Case Studies regarding Environmental effects
Digital System Specialization					
1	Computer Architecture	3-0-0	3	NIL	Nil
2	PLD's & FPGAs	3-0-0	3	NIL	Nil
3	VLSI Design	3-0-0	3	NIL	Nil
4	Embedded System Design	3-0-0	3	NIL	Nil
5	DSP Processors	3-0-0	3	NIL	Nil
V OPEN ELECTIVES					
1	Renewable Energy Sources	3-0-0	3	NIL	Topic Added: Case Studies regarding Environmental effects
VI PROJECT					
1	Term Paper	0-0-4	2	NIL	Nil
2	Minor Project	0-0-4	2	NIL	Topic Modified: Technical Paper (IEEE) Literature Review & Partial Results
3	Major Project	0-0-16	8	NIL	Nil
4	Industrial Practice School	0-0-16		NIL	Nil
5	Industrial Training (Summer Break in II/IV year)		2	NIL	Nil

S.No	Course Name	L-T-P	Cr	Pre-Req.	Remarks
IV	PROFESSIONAL CORE COURSES				
1	Digital System Design	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
2	Computer Organization and Architecture	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
3	Electrical Circuits	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
4	Analog Electronic Circuit Design	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
5	DC Machines and Transformers	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
6	Processors and Controllers	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
7	AC Machines	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
8	Signal Processing	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
9	Generation, Transmission & Distribution	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
10	Control Systems	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
11	Power System Analysis	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
12	Power Electronics	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
13	Power System Protection	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
14	Electrical Drives	2-2--2	4	NIL	Topic Modified: Removal of Project Based lab
IV	PROFESSIONAL ELECTIVES				
Power Electronics Specialization					
1	Advanced Power Electronics	3-0-0	3	NIL	Nil
2	Advanced Electrical Drives	3-0-0	3	NIL	Nil
3	HVDC & FACTS	3-0-0	3	NIL	Nil
4	Power Quality	3-0-0	3	NIL	Topic Added: Case Studies in improving Power Quality Measures
5	Hybrid Electrical Vehicles	3-0-0	3	NIL	Topic Added: Case Studies regarding Environmental Effects
Power Systems Specialization					
1	Distribution System Planning & Automation	3-0-0	3	NIL	Topic Added: Case Studies regarding Environmental effects
2	Restructured Power Systems	3-0-0	3	NIL	Nil
3	HVDC & FACTS	3-0-0	3	NIL	Topic Added: Case Studies regarding Environmental effects
4	Power Quality	3-0-0	3	NIL	Topic Added: Case Studies in improving Power Quality Measures
5	Smart Grid Technologies	3-0-0	3	NIL	Topic Modified: Case Studies incorporated to acquire knowledge on Smart Grid