

DEPARTMENT OF ELECTRONICS

MINUTES OF THE BOARD OF STUDIES IN ELECTRONICS HELD ON 15.06.2022

The Board of studies meeting started with a prayer rendered by Rev Fr. J. John Wilson. The Chairman of the board, Dr. B. Kanickairaj welcomed and introduced the external experts Dr. S. Kalidass (University Representative), Dr. John Bosco Balaguru (Academic Expert), Mr. Sathyankaliyamoorthy (Industrial Expert) and other board members. External members attended the meeting through online. The Chairman of the board, Dr.B. Kanickairaj briefed all the PG papers and the board has discussed all the papers and gave consent as follows:

PG COURSE PATTERN

The Head of the Department, Dr. B. Kanickairaj presented the PG Course Pattern. Dr. S. Kalidass, Dr. John Bosco Balaguru and Mr. Sathyankaliyamoorthy accepted all the credits and hours allotted to the papers. Dr. S. Kalidass appreciated that all the emerging areas and topics of Electronics were included in the syllabus. Dr. John Bosco Balaguru acknowledged that all the papers were well formatted and up to the standard of the industry. He further admired that the Embedded focused curriculum and skill-enhancing practical sessions offered by the department would be definitely helpful to the PG students to grab the job opportunities. He further highlighted how this kind of exposure lead to some placements which have been specifically required our own alumni. Mr. Sathyankaliyamoorthy also gave a good note on the formation of the syllabus. With all these fruitful discussions, the PG Course Pattern was passed by the board.

SEMESTER I

DESIGN OF ANALOG CIRCUITS:

Dr. S. Kalidass and Mr. Sathyankaliyamoorthy accepted the syllabus with no comments. Dr. John Bosco Balaguru insisted to add frequency response analysis of amplifiers without which syllabus would be half-filled. He enquired about the syllabus of UG Electronics circuits and Linear Integrated Circuits papers. He further added why unit IV was given with 15 hours. Dr. B. Kanickairaj answered all the questions appropriately in such a way that unit IV had been covered around 50 pages in the prescribed text book within which no topic can be omitted or deleted and so that unit would take hardly 15 hours to complete. Dr. John Bosco Balaguru accepted his views. He appreciated the formation of the units III and V. He suggested to add the topic “review of low and high frequency response analysis of single and multistage amplifiers” in unit I and his suggestion was implemented. He finally recommended to add the text book “Operational amplifiers and Linear Integrated Circuits”, by Frederick. F. Driscoll. The board accepted and implemented all the proposed suggestions and the paper was passed.

DESIGN OF DIGITAL CIRCUITS:

Dr. John Bosco Balaguru put forward a note to add “Verilog “in Digital Design paper and so it would be beneficial to the students during semester interchange/abroad exchange modes offered by several world class universities with stipends. He further encouraged to

keep minimum two practical Verilog experiments like Multiplexer and demultiplexer design in the list. He advised to add the latest edition text books. All his suggestions were accepted and carried out and that paper was passed by the board.

POWER ELECTRONICS AND SOLAR PV SYSTEMS

Dr. S. Kalidass enquired about the percentage of weightage given to Solar Energy and other Power Electronics topics. Dr. B. Kanickairaj answered that units I and II are the Power Electronics and units IV and V are the Solar energy applications. He further added that the unit III is both for Power Electronics and Solar Energy systems and so almost 50% [equal] weightage was given to both the areas. Dr. John Bosco Balaguru and Mr. Sathyankaliyamoorthy accepted all the views and that paper was passed by the board.

ELECTRONICS PRACTICAL-I:

Dr. John Bosco Balaguru insisted to add frequency response analysis of amplifiers in the practical list. The board took up the suggestion and passed the paper.

EMBEDDED SYSTEM-I:

Dr. B. Kanickairaj briefed the syllabus. Dr. S. Kalidass expressed the less inclusion of basic Microcontroller concepts and selection of the core elective paper. Dr. B. Kanickairaj answered him about the basic Microcontroller is in the UG curriculum. He further explained that the students would select any one of the elective papers. If the students select Embedded Systems-I in first semester, only then they would continue with Embedded Systems-II in third semester. Otherwise, they would select Electromagnetics and Antenna design in first semester and Digital Communication Systems in second semester.

Dr. John Bosco Balaguru connoted that the syllabus formation was good but he doubted the time allotment given to each unit could be justifiable or not. Dr. B. Kanickairaj replied him that the hidden subtopics like design, example and analysis under each major topic would be definitely justifiable to the allotted no of hours.

Mr. Sathyankaliyamoorthy enquired about the Embedded C and Microcontroller board topics in Embedded Systems I and II papers. Dr. B. Kanickairaj answered him that five different Embedded Programming Languages and 8-bit, 16bit and 32 bit and advanced SBC boards have been included in the syllabus. Board undertook the views in a positive way and passed the paper.

ELECTROMAGNETICS AND ANTENNA DESIGN:

Dr. John Bosco Balaguru suggested to change the text book for Electromagnetics and his suggestion was carried out and the paper was passed.

MATHEMATICS, SIGNALS AND SYSTEMS:

Dr. John Bosco Balaguru recommended to change the title from “Mathematics for Electronics and Signals and Systems” into “Mathematics, Signals and Systems”. He suggested to reduce the heaviness of the paper by reducing some topics in Mathematics and some in Signals and Systems. He further added to increase the hour allotment given to UNIT IV and

include the online video reference” MATH THE BEAUTIFUL”. All his views were notified and implemented. Thus, the paper was passed by the board.

MECHATRONICS AND AUTOMOTIVE ELECTRONICS:

Dr. John Bosco Balaguru appreciated the syllabus formation of the paper. Mr. Sathyankaliyamoorthy, the Industrial Expert has asked about Cyber Security and Electric Vehicles. He further raised about the inclusion of types of Engines. Dr. B. Kanickairaj replied him that all the suggested topics have already been included. He insisted to add the topic Accelerometers in the syllabus. Mr. Sathyankaliyamoorthy finally propounded to include the latest CAN FD Protocol in the syllabus. The board accepted his suggestion and the paper was passed.

DIGITAL SIGNAL PROCESSING:

Dr. John Bosco Balaguru suggested to handle the unit V as practical assignment to enhance the learning process for the students. The board accepted and passed the paper.

ELECTRONICS PRACTICAL-II:

Dr. John Bosco Balaguru expressed his view on deciding the practical titles could be more specific than general. Dr. B. Kanickairaj said that the titles would be general and open ended on syllabus formation and narrowed by the respective class in charge to specific applications during practical sessions. The board accepted and passed the paper.

SENSORS, TRANSDUCERS AND MEMS:

The paper formation was appreciated and passed by the board with no comments.

DIGITAL COMMUNICATION SYSTEMS:

The paper formation was appreciated and passed by the board.

SELF PACED ELECTIVE:

Dr. B. Kanickairaj explained about the Self -Paced Learning credit and evaluation system. He further elaborated about the newly launched Learning Management System for Self- Paced Courses. He conveyed if it is feasible to COE, we would offer all the three papers to the students as internal choice. Otherwise, one of the papers would be allotted. The board accepted and passed the papers.

ELECTRONICS MEDIA:

Dr. B. Kanickairaj briefed the significance of the paper and explained that the students from Physics and Chemistry would study this paper. He further added that the syllabus was formulated in such a way that it could be easily studied by those students. The board appreciated and passed the paper.

SINGLE BOARD COMPUTERS AND PYTHON:

Dr. John Bosco Balaguru agreed the syllabus formation and recommended that the students could have undergone Python Programming course before the commencement of this paper. He further added that 8 /12 weeks course offered by NPTEL or any other portal like Course era would be an added advantage to the students to follow this paper fruitfully. Dr. B. Kanickairaj replied him that we would insist students to finish the Python programming course as MOOC-1 or in the summer vocational course. The board accepted all the points and passed the paper.

VLSI DESIGN AND VERILOG PROGRAMMING:

Dr. John Bosco Balaguru encouraged the syllabus formation and suggested to add the reference book,” A Verilog HDL Primer”, by J. Bhasker. He strongly recommended to spend some amount to purchase basic DE1, DE2 FPGA kits and to avail license for certain Cadence tools which would support VLSI and IC design. All accepted his suggestions and passed the paper.

ELECTRONIC INSTRUMENTATION AND VIRTUAL INSTRUMENTATION:

Dr. B. Kanickairaj briefed the flow of the paper. Dr. John Bosco Balaguru suggested that semi theory and semi-Laboratory scheme could be followed for that paper. Dr. B. Kanickairaj replied him that the paper was formulated in that way. Dr. John Bosco Balaguru asked to add two more books in the reference such as, “LabVIEW for everyone” by Jeffrey Travis and “Learning with LabVIEW” by Robert H. Bishop. The board accepted and carried out all the suggestions. The paper was thus passed by the board.

ELECTRONICS PRACTICAL-III:

Dr. B. Kanickairaj explained the proposed list of experiments. Dr. John Bosco Balaguru insisted to buy some basic Embedded and FPGA boards. The board accepted and passed the paper.

INTERNSHIP:

Dr. S. Kalidass enquired the duration and place of the Internship. Dr. B. Kanickairajreplied him that the students would be advised to undergo one month internship either in MNC/Large Scale Industries or in National/International laboratory. The board accepted and passed the paper.

EMBEDDED SYSTEMS-II:

Dr. B. Kanickairaj presented the contents of the paper and the board passed the paper without any further changes.

MOBILE COMPUTING:

Dr. John Bosco Balaguru insisted to add some IoT Protocols like LoRA , LTE standard. He asked to add these could be added either in this paper or IoT paper. The board accepted, implemented his suggestions and passed the paper.

COMPUTER HARDWARE AND NETWORKS:

Dr. B. Kanickairaj explained the Generic Elective paper, Computer hardware and Networks. He further added that this paper would be given for students from other Schools and for their ease, Computer Hardware was proposed. His views were accepted by the board and passed the paper.

CONTROL SYSTEM AND INDUSTRIAL AUTOMATION:

Dr. John Bosco Balaguru felt the formation of syllabus was heavy and proposed some suggestions to reduce some part of the paper and to add the text book, “Control Systems Technology”, by Curtis Johnson. The board accepted and passed the paper.

INTERNET OF THINGS AND ARTIFICIAL INTELLIGENCE:

Dr. John Bosco Balaguru felt highly satisfied about the syllabus formation and insisted to ask the students to undergo a course on AI through MOOC before the start of the semester. The board accepted and passed the paper.

ELECTRONICS PRACTICAL-IV:

The board accepted and passed the paper without any further changes.

ADVANCED COMMUNICATION SYSTEMS:

The Academic Expert Dr. John Bosco Balaguru suggested to remove the word “Advanced” from the title. He suggested to add the text book, “Communication Electronics”, by Deshpande. The board accepted and passed the paper without any further changes.

WIRELESS SENSOR NETWORKS:

Dr. John Bosco Balaguru felt that this paper could have been studied before IoT paper. Dr. B. Kanickairaj replied him that the paper is a core elective and so we kept the paper in fourth semester. The board accepted and passed the paper without any further changes.

The Head of the Department, Dr. B. Kanickairaj requested the external experts to consolidate their final views. Dr. S. Kalidass concluded that the entire paper formation was well established. Dr. John Bosco Balaguru consolidated that the syllabus formation was upto the best of the industry standard and insisted to handle the practical sessions with extra hours and own boards and licensed software. Mr. Sathyankaliyamoorthy concluded that the standard of the syllabus was good and can concentrate more on Embedded Programming Languages and Communication Protocols.

The board accepted all the suggestions and implemented. Finally, the Head of the department Dr. B. Kanickairaj proposed the vote of thanks to all the panel and the board members.


There is no correction in the UG Syllabus.

B.Sc. ELECTRONICS								
PROGRAMME PATTERN								
Course Details						Scheme of Exams		
Sem	Part	Course Code	Course Title	Hrs	Cr	CIA	SE	Final
I	1	21UTA11GL01	General Tamil - I	4	3	100	100	100
		21UFR11GL01	French-I					
		21UHI11GL01	Hindi-I					
		21USA11GL01	Sanskrit-I					
	2	21UEN12GE01	General English -I	5	3	100	100	100
	3	21UEL13CC01	Semiconductor Theory and Electronic Devices	7	5	100	100	100
	3	@	Electronics Practical – I	3	*			
	3	@	Electronics Workshop Practice - I	3	*			
	3	21UEL13AC01	Allied :Mathematics-I	6	4	100	100	100
	4	2UEN14AE01	AECC-1: Communicative English	(6)	4	100	-	100
	4	21UHE14VE01	Essentials of Humanity	2	1	50	50	50
Total				30	20			
II	1	21UTA21GL02	General Tamil - II	4	3	100	100	100
		21UFR21GL02	French-II					
		21UHI21GL02	Hindi-II					
		21USA21GL02	Sanskrit-II					
	2	21UEN22GE02	General English -II	5	3	100	100	100
	3	21UEL23CC02	Electric Circuit Analysis	5	4	100	100	100
	3	21UEL23CP01	CP 1: Electronics Practical – I	3	2	100	100	100
	3	21UEL23WS01	WS-1: Electronics Workshop Practice - I	3	2	100	-	100
	3	21UEL23AC02	Allied : Mathematics-II	6	4	100	100	100
	4	21UHE24AE02	AECC-2: Environmental Studies	2	2	50	50	50
	4	21UHE24VE02	Techniques of Social Analysis: Fundamentals of Human Rights	2	1	50	50	50
			Extra Credit Courses (MOOC)-1	-	(2)			
Total				30	21(2)			
III	1	21UTA31GL03	General Tamil - III	4	3	100	100	100
		21UFR31GL03	French- III					
		21UHI31GL03	Hindi- III					
		21USA31GL03	Sanskrit- III					
	2	21UEN32GE03	General English - III	5	3	100	100	100
	3	21UEL33CC03	Digital Electronics	4	3	100	100	100
	3	21UEL33CC04	Electronic Circuits	4	3	100	100	100
	3	@	Electronics Practical – II	3	*			
	3	21UEL33AO03A	AlliedOptional: Applied Physics-I	4	3	100	100	100
		21UEL33AO03B	AlliedOptional: Computer Science-I					
		@	Allied Optional: Applied Physics-I Practical	2	-	-	-	-
		@	AlliedOptional: Computer SciencePractical					
	4	21UEL34SE01A	SEC- 1 (WD):Sound Engineering	2	1	100	-	100
		21UEL34SE01B	SEC- 1 (WD):Lab Equipment Maintenance and Servicing					
	4	21UHE34VE03A	Professional Ethics–I: Social Ethics - I	2	1	50	50	50
		21UHE34VE03B	Professional Ethics -I: Religious Doctrine-I					
			Extra Credit Courses (MOOC)-2		(2)			
Total				30	17(2)			

IV	1	21UTA41GL04B	Scientific Tamil(SBS, SPS,SCS)	4	3	100	100	100
		21UFR41GL04	French-IV					
		21UHI41GL04	Hindi- IV					
		21USA41GL04	Sanskrit- IV					
	2	21UEN42GE04	General English - IV	5	3	100	100	100
	3	21UEL43CC05	Linear Integrated Circuits	4	3	100	100	100
	3	21UEL43CC06	Communication Electronics	4	3	100	100	100
	3	21UEL43CP02	CP 2: Electronics Practical - II	3	2	100	100	100
	3	21UEL43AO04A	AlliedOptional: Applied Physics-II	4	3	100	100	100
		21UEL43AO04B	AlliedOptional: Computer Science-II					
		21UEL43AP01A	AlliedOptional: Applied Physics Practical	2	2	100	100	100
		21UEL43AP01B	AlliedOptional: Computer Science Practical					
	4	21UEL44SE02	SEC -2 (BS): PC Assembling and Servicing	2	1	100	-	100
	4	21UHE44VE04A	Professional Ethics–II: Social Ethics - II	2	1	50	50	50
	21UHE44VE04B	Professional Ethics -II: Religious Doctrine-II						
Total				30	21			
V	3	21UEL53CC07	Microprocessors and Applications	4	3	100	100	100
	3	21UEL53CC08	Sensors and Electronic Instrumentation	4	3	100	100	100
	3	21UEL53CP03	CP 3: Electronics Practical – III	6	3	100	100	100
	3	21UEL53ES01A	DSE-1: Mobile Communication	5	3	100	100	100
		21UEL53ES01B	DSE-1: Medical Electronics					
		21UEL53ES02A	DSE -2: C and Python Programming	5	3	100	100	100
		21UEL53ES02B	DSE -2:Computer Hardware and Networks					
	3	21UEL53IS01	Internship	-	2	100		100
	3	21UEL53SP01A	Self-Paced Learning: RF, Microwave and Optical Communications	-	2	50	50	50
		21UEL53SP01B	PCB Design and Fabrication					
	3	21UEL53FV01	Field Study/ Industrial Visit/ Case Study	-	1	100	-	100
	4	21USS54SE03	SEC -3 : Soft Skills	2	1	100	-	100
	4	21UEL54EG01A	GE-1: Everyday Electronics	4	3	100	100	100
		21UEL54EG01B	GE-1: Wireless Communication					
			Extra Credit Courses (MOOC)-3		(2)			
Total				30	24(2)			
VI	3	21UEL63CC09	Microcontroller and Embedded System	4	3	100	100	100
	3	21UEL63CC10	Power Electronics	4	3	100	100	100
	3	21UEL63CP04	CP 4: Electronics Practical – IV	6	3	100	100	100
	3	21UEL63ES03A	DSE-3: Control System	5	3	100	100	100
		21UEL63ES03B	DSE-3: Virtual Instrumentation					
	3	21UEL63ES04A	DSE-4:Robotics and Industrial Automation	5	3	100	100	100
		21UEL63ES04B	DSE-4: Digital Image Processing					
	3	21UEL63PW01	Project Work	-	2	100	100	100
	3	21UEL63CE01	Comprehensive Exam	-	2	50	50	50
	4	21UEL64SE04A	SEC -4 (WS): Consumer Electronics	2	1	100	-	100
		21UEL64SE04B	SEC -4 (WS): Industrial Electronics					
	4	21UEL64EG02A	GE-2:CCTV and Smart Security Systems	4	3	100	100	100
		21UEL64EG02B	GE-2: Entrepreneurial Electronics					
Total				30	23			
I-VI	5	21UCW65OR01	Outreach Programme (SHEPHERD)	-	4			
Total				180	130(6)			

M.Sc. ELECTRONICS							
PROGRAMME PATTERN							
Course Title							
Sem	CODE	COURSE TITLE	Hrs.	Cr	CIA	SE	Final
I	22PEL1CC01	Design of Analog Circuits	5	4	100	100	100
	22PEL1CC02	Design of Digital Circuits	4	4	100	100	100
	22PEL1CC03	Power Electronics and Solar PV Systems	4	4	100	100	100
	22PEL1CP01	Electronics Practical - I	8	6	100	100	100
	22PEL1ES01A	DSE-1: Embedded System-I	5	4	100	100	100
	22PEL1ES01B	DSE-1: Electromagnetics and Antenna Design					
	22PEL1AE01	AEC – Mathematics, Signals and Systems	4	3	50	50	50
TOTAL			30	25			
II	22PEL2CC04	Mechatronics and Automotive Electronics	4	4	100	100	100
	22PEL2CC05	Digital Signal Processing	5	5	100	100	100
	22PEL2CP02	Electronics Practical - II	8	6	100	100	100
	22PEL2ES02A	DSE-2: Sensors, Transducers and MEMS	5	4	100	100	100
	22PEL2ES02B	DSE-2: Digital Communication Systems					
	22PEL 2SP01A	SPL: Programmable Logic Controller	-	2	50	50	50
	22PEL2SP01B	SPL: Consumer Electronics					
	22PEL2SP01C	SPL: Medical Electronics					
	21PSS2SE01	SEC-1: Soft skill	4	3	100	-	100
	22PEL2EG01	GE-1(WS) Electronics media	4	3	100	100	100
		Extra Credit courses (MOOC)-1	-	(2)			
TOTAL			30	27			
III	22PEL3CC06	Single Board Computers and Python	4	4	100	100	100
	22PEL3CC07	VLSI Design and VERILOG Programming	4	4	100	100	100
	22PEL3CC08	Electronic Instrumentation and Virtual Instrumentation	5	4	100	100	100
	22PEL3CP03	Electronics Practical - III	8	6	100	100	100
	22PEL3IS01	Internship		2	100	100	100
	22PEL3ES03A	DSE-3: Embedded System-II	5	4	100	100	100
	22PEL3ES03B	DSE-3: Mobile Computing					
	22PEL3EG02	GE-2 (BS): Computer Hardware and Networks	4	3	100	100	100
		Extra Credit courses (MOOC)-2		(2)			
TOTAL			30	27			
IV	22PEL4CC09	Control System and Industrial Automation	5	4	100	100	100
	22PEL4CC10	Internet of Things and Artificial Intelligence	6	5	100	100	100
	22PEL4CP04	Electronics Practical - IV	8	6	100	100	100
	22PEL4ES04A	DSE-4: Communication Systems	5	4	100	100	100
	22PEL4ES04B	DSE-4: Wireless Sensor Networks					
	22PEL4PW01	Project work and Viva Voce	6	6	100	100	100
	22PEL4CE01	Comprehensive Exam	-	2	50	50	50
		Extra Credit courses (MOOC)-3	-	(2)			
	TOTAL		30	27			
I-IV		Outreach program		4			
Total (Four Semesters)			120	110(6)			

BOARD OF STUDIES MEETING - HELD ON 15-06-2022		
DEPARTMENT OF ELECTRONICS St. JOSEPH'S COLLEGE(AUTONOMOUS) TIRUCHIRAPPALLI -620002		
S. No.	Name and address	Signature
1.	Dr. S. Kalidass Associate Professor Department of Electronics Government Arts college, Tiruchirappalli – 620 022 (University Representative)	Online
2.	Dr. R. John Bosco Balaguru Dean, Sponsored Research Professor, School of Electrical and Electronics Engineering, Centre for Nanotechnology and Advanced Biomaterials, SASTRA University, Thanjavur 613 401. E-mail: rjbosco@ece.sastra.edu Mobile: 9944468889 (Subject Expert)	Online
3.	Mr. Sathiyar Kaliyamoorthy Bosch Engineering and Business Solution, Coimbatore E-mail: sathiyar.kaliyamoorthy@in.bosch.com Mobile: 9994986051	Online
4.	Dr. B. Kanickairaj	<i>Mr. B. Kanickairaj</i>
5.	Rev. Fr. J. John Wilson SJ	<i>Rev. Fr. J. John Wilson SJ</i>
6.	Mr. A. Arputharaj	<i>A. Arputharaj</i>
7.	Ms. V. Sivakamasundari	<i>V. Sivakamasundari</i>
8.	Dr. P. Subbuthai	<i>P. Subbuthai</i>
9.	Dr. V. Manickam	<i>V. Manickam</i>
10.	Dr. V. Kesavan	<i>V. Kesavan</i>

Dr. S. Kalidass

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