Panchajanya Vidya Peetha Welfare Trust (Regd)

Dr. Ambedkar Institute of Technology

An Autonomous Institution, Affiliated to Visvesvaraya Technological University, Belagavi,
Aided by Govt. of Karnataka, Approved by All India Council for Technical Education (AICTE), New Delhi
Accredited by NBA and NAAC with 'A' Grade
BDA Outer Ring Road, Mallathalli, Bengaluru - 560 056

Ref. No. ..... **Department of Medical Electronics Engineering** Date : 4:1:2023

BOS approval was taken to introduce the following new subjects.

Name of the Course	Course Code	Year
Embedded Systems & IOT Applications	18ML551	2020
Operation And Testing Medical Devices Lab	18MLL67	2020
Biomechanics	ML73	2020
Neural Network And Machine Learning	18ML71	2021

BOS Chairman

Principal

Ph : 23211232, Fax : 080-23217789, E-mail : principal@drait.edu.in, Website : www.drait.edu.in

Scanned with OKEN Scanner

Dr. Ambedkar Institute of Technology

Department of Medical Electronics Engineering

The enclosed documents are verified and approved.

HOD

Head of the Department
Dept. of Medical Electronics Engineering
Dr. Ambedkar Institute of Technology
Bangalore - 560 056.

Dr. Ambedkar Institute of Technology Bangalore 56
Department of Medical Electronics
BOS- XII Dated 22/06/2021

Proceedings of the online BoS Meeting over Google Meet platform

The BoS Chairman welcomed the members on board. The same board members had devised the 2018 scheme defining the broader structure for the entire programme of Medical Electronics (2018 scheme) starting from 3rd sem. to 8th sem. The same committee had discussed in length and finalized the syllabus for the 3rd & 4th Sem. 5th & 6th sem. of 2018 scheme. The chair person reminded the members the same and placed before the committee the agenda for discussion.

1. Approval of the Curriculum for the 2020-21,2019-20,2018-19 batches
2. Review of 3rd & 4th sem. 5th & 6th Sem.
3. Scrutiny & approval of 7th & 8th sem. syllabus
4. Approval of subject list for BE Honours & Minors
5. Approval of BOE members & examiners panel

Agenda 1 was approved by the committee

Agenda 2

The syllabus of 3rd & 4th semesters were framed after detailed deliberations in the earlier BoS and no revisions were proposed in most of the subjects. The revised subjects are listed below:

18ML41 Microcontroller: The internal BoS had planned to update the syllabus by including MSP430 processor. The committee also approved the same. Dr. VG Sangam enquired about the lab facility for MSP 430 and since the lab resources are available it would be a better option. And Dr. Praful P Pai suggested to introduce ARM Processor through workshops and hands on training so that it may be gradually introduced as a processor of study. This could be mentioned in the syllabus and evaluated as an assignment exercise, to validate the study.

18ML42 Communication Systems: Simulations experiments on basic communication concepts using Simulink to enrich the understanding of the subject and to be evaluated as assignment

18MLL47 Microcontroller Lab: To include programming using both the processors. And Dr.Bhaskar Murary and Dr. ER Rajkumar suggested to change the sequences of exercises so that the students develop programming skills through simple application modules. The Part 1 to have software programs as existing and in Part 2 study of interfacing experiments can be made through group modular projects so that the students can realise application modules

Scanned with CamScanner

combining interfacing and programming skills. This might help students to involve in developing applications at an early stage. Dr. N Sriraam expressed the concern that the average performers should be kept in mind while framing the contents. The syllabus is modified accordingly.

18ML551-Python Programming: New Professional elective is included as Learning Python programming skills are becoming inevitable from the industry point of view.

Agenda 3:

18Ml71 The internal BoS had proposed **Deep Learning** where the three units were on basics of Neural Network & Pattern recognition and introduced the concepts of Deep Learning in the last two units. The committee also approved the syllabus as understanding of Neural Networks is a prerequisite for Deep Learning. And Dr. Vijayalakshmi & Dr. N Sriraam proposed to change the subject title to **Neural Network & Machine Learning**, and the committee decided on the same. The Committee also proposed case study on the application, only then the students will visualize the subjects better. Mr. Tejas Venkatesh also expressed the case study should be based on image analysis while Mr. Pai added Biomedical Signal analysis also for the case study. The suggestions are incorporated and the case study will be evaluated through assignment.

Mr. Ayyappadas M shared his view on expanding the lab facilities for Biomedical Equipments. And he also pointed out that we have to get industry experts for each equipment so that the students acquire the right understanding. The point is noted and implemented as the department is in the process of setting up a new Lab.

The Alumni representative Varsha G expressed the opinion that the students should be briefed about the open electives so that they can make an appropriate choice. This concern will be shared with the college council.

The meeting concluded with the chair person thanking individual members for their invaluable time & support in coming up with a full fledged and competitive curriculum.

Date: 23/6/2021

Sd/

Chair Person

BOS Committee

Scanned with CamScanner

Dr. Ambedkar Institute of Technology Bangalore 56

Department of Medical Electronics

BOS- X1 Dated 14/08/2020

Proceedings of the online BoS Meeting over Google Meet platform

The BoS Chairman welcomed the members on board. The same board members had devised the 2018 scheme defining the broader structure for the 2018 scheme starting from 3rd sem. to 8th sem. The same committee had discussed in length and finalized the syllabus for the 3rd & 4th Sem. of 2018 scheme. The chair person reminded the members the same and placed before the committee the agenda for discussion.

1. Feedback on PEO's & newly framed PSO's of the department
2. Approval of the Curriculum for the 2019-20,2018-19 and 2017-18 batches
3. Review of 3rd & 4th sem. Syllabus & 7th & 8th Sem. syllabus
4. Scrutiny & approval of 5th & 6th sem. syllabus
5. Approval of subject list for BE Honours & Minors
6. Approval of BOE members & examiners panel

Agenda 1 is being circulated among the members and awaited for specific remarks. Overall the PEO's & PSO's were accepted.

Agenda 2 The curriculum was approved for all the three batches

Agenda 3 Review of 3rd & 4th sem. the board member Mr. Santhosh Lawrence General Manager WIPRO-GE observed that 18 ML36 OOPs the theory & lab occur in two different semesters. The Chairperson explained it is because the department has to adhere to stipulated credits per semester, and any one of the labs from 3rd sem. had to be advanced to 4th sem. and however the subject assignment programs have to be verified practically. The syllabus of 3rd & 4th sem. was approved. Syllabus for 7th & 8th Sem. ML73 Biomechanics was introduced as a core subject by adjusting credits from ML71 BMDSP, ML72 DIP & MLL76 BMDSP Lab. The internal BoS had decided to introduce Biomechanics, as this was one of the subjects in GATE 2020 where Biomedical Instrumentation was introduced for the first time. The same was approved by the committee.

Agenda 4 Control Systems & Physiological Control Systems were combined together to form 18ML53 Physiological Control Systems for 4 credits, the syllabus was discussed and approved.

Scanned with CamScanner

Dr. Vijayalakshmi Prof. & HOD Medical Electronics, BMSCE suggested to rename Medical Electronics lab to a more specific one such as Biomedical Instrumentation Lab 18MLL57 and the same is adapted. Similarly 18MLL59 BMDSP lab since it covers image processing and biomedical signals it was felt that the same may be reflected in the title of the lab also. Hence it was agreed to rename the lab as Biomedical Digital & Image Processing Lab. There was a detailed discussion on Medical Physics 18 ML64 and Medical Imaging Systems 18ML52 and agreed to accept the syllabus. 18ML62 LFO syllabus was reviewed and suggestions by Dr. Bhaskar Mohan Murary, Professor, School of Biosciences & Technology , VIT Vellore, is incorporated. A New lab 18MLL67 Operation & Testing of Medical Devices lab was introduced to introduce the skill in repairing & maintenance of the devices.

Agenda 5 The list of subjects for BE honours & Minors degree was approved

Agenda 6 The list of BOE members & examiners panel was approved

The Chairman thanked the BoS members for their interaction and valuable contribution.

BOS Chair

Scanned with CamScanner

Dr. Ambedkar Institute of Technology, Bangalore-560056

Department of Medical Electronics Engineering

Details of Curriculum Design Under Autonomy for UG Program 2019-20 Batch

BOS XI (2020) Date: 14/8/2020

Sl No	Category	Number of Credits							Credit range as per VTU guideline (175 Credits)	Actual Credit Allocation
		Sem I & II	Sem III	Sem. IV	Sem. V	Sem. VI	Sem. VII	Sem. VIII		
A	Humanities And Social Sciences	02	01	01	03	3	2	2	5-10	14
B	Basic Sciences	18	03	03					10-20	24
C	Engineering Sciences	20	09			3			10-20	32
D	Professional Subjects-Core		11	20	16	10	10		30-40	67
E	Professional Subjects-Elective				3	3	6		10-15	12
F	Other Elective- Inter department				3	3	3		5-10	9
G	Project Work+ Seminar + Project tour					2	2	13	10-15	17
	Total no of subjects/components	16	12	11	8	10				
	Total No of Credits	40	24	24	25	24	23	15		175

CHAIRMAN/BOS DEAN (ACADEMIC) CHAIRMAN/ACADEMIC COUNCIL

Scanned with CamScanner

Dr. Ambedkar Institute of Technology, Bangalore-560056

Department of Medical Electronics Engineering

Details of Curriculum Design Under Autonomy for UG Program 2018-19 Batch

BOS XI (2020) Date: 14/8/2020

Sl. No	Category	Number of Credits							Credit range as per VTU guideline (175 Credits)	Actual Cr Allocatio
		Sem. I & II	Sem. III	Sem. IV	Sem. V	Sem. VI	Sem. VII	Sem. VIII		
A	Humanities And Social Sciences	02	01	01	03	3	2	2	5-10	14
B	Basic Sciences	18	03	03					10-20	24
C	Engineering Sciences	20	09			3			10-20	32
D	Professional Subjects-Core		11	20	16	10	10		30-40	67
E	Professional Subjects-Elective				3	3	6		10-15	12
F	Other Elective- Inter department				3	3	3		5-10	9
G	Project Work+ Seminar + Project tour					2	2	13	10-15	17
	Total no of subjects/components	16	12	11	8	10				
	Total No of Credits	40	24	24	25	24	23	15		175

CHAIRMAN/BOS

DEAN (ACADEMIC)

CHAIRMAN/ACADEMIC COUNCIL

Scanned with CamScanner

Dr. Ambedkar Institute of Technology, Bangalore-560056

Department of Medical Electronics Engineering

Details of Curriculum Design Under Autonomy for UG Program 2017-18 Batch

BOS XI (2020) Date: 14/8/2020

Sl No	Category	Number of Credits							Credit range as per VTU guideline (200 Credits)	Actu Cred Alloca
		Sem. I & II	Sem. III	Sem. IV	Sem. V	Sem. VI	Sem. VII	Sem. VIII		
A	Humanities And Social Sciences	04			04		02		10-20	10
B	Basic Sciences	19	04	04					30-40	27
C	Engineering Sciences	27	22						30-40	49
D	Professional Subjects-Core			21	17	20	10		60-80	68
E	Professional Subjects-Elective				4	04	06	08	20-30	22
F	Other Elective- Inter department						04	04	10-20	08
G	Project Work+ Seminar + Project tour					02	02	12	20-30	16
	Total no of subjects/components	16	09	08	08	09	10	04		
	Total No of Credits	50	26	25	25	26	24	24		200

Curricula 2017-

CHAIRMAN/BOS DEAN (ACADEMIC) CHAIRMAN/ACADEMIC COUNCIL

Scanned with CamScanner

Dr. Ambedkar Institute of Technology, Bangalore-560056

Department of Medical Electronics Engineering

Details of Curriculum Design Under Autonomy for UG Program 2018-19 Batch

BOS 10 (2019) Date: 27/5/2019

Sl No	Category	Number of Credits							Percentage of total Credits as per VTU guideline (175 Credits)	Actual Credit Allocation
		Sem. I & II	Sem. III	Sem. IV	Sem. V	Sem. VI	Sem. VII	Sem. VIII		
A	Humanities And Social Sciences	02	01	01	03	03	02	02	5-10	14
B	Basic Sciences	18	03	03					10-20	24
C	Engineering Sciences	20	03		03				15-20	26
D	Professional Subjects-Core		17	20	15	13	09		30-40	74
E	Professional Subjects-Elective				03	03	06		10-15	12
F	Other Elective- Inter department					03	03	03	5-10	09
G	Project Work+ Seminar + Project tour					03	02	11	10-15	16
	Total no of subjects/components	16	12	11	08	10	08	05		
	Total No of Credits	40	24	24	24	25	22	16		175

CHAIRMAN/BOS
27/5

DEAN (ACADEMIC)

CHAIRMAN/ACADEMIC COUNCIL

Scanned with CamScanner

Dr. Ambedkar Institute of Technology, Bangalore-560056

Department of Medical Electronics Engineering

Details of Curriculum Design Under Autonomy for UG Program 2017-18 Batch

BOS 10 (2019) Date: 27/5/2019

Sl No	Category	Number of Credits							Credit range as per VTU guideline (200 Credits)	Actual Credit Allocation
		Sem. I & II	Sem. III	Sem. IV	Sem. V	Sem. VI	Sem. VII	Sem. VIII		
A	Humanities And Social Sciences	04			04		02		10-20	10
B	Basic Sciences	19	04	04					30-40	27
C	Engineering Sciences	27	22						30-40	49
D	Professional Subjects-Core			21	17	20	09		60-80	67
E	Professional Subjects-Elective				4	04	07	08	20-30	23
F	Other Elective- Inter department						04	04	10-20	08
G	Project Work+ Seminar + Project tour					02	02	12	20-30	16
	Total no of subjects/components	16	09	08	08	09	09	04		
	Total No of Credits	50	26	25	25	26	24	24		200

CHAIRMAN/BOS 27/5

DEAN (ACADEMIC)

CHAIRMAN/ACADEMIC COUNCIL

Scanned with CamScanner

Dr. Ambedkar Institute of Technology, Bangalore-560056

Department of Medical Electronics Engineering

Details of Curriculum Design Under Autonomy for UG Program 2016-17 Batch

BOS 10 (2019) Date: 27/5/2019

Sl. No	Category	Number of Credits							Credit range as per VTU guideline (200 Credits)	Actual Credit Allocation
		Sem. I & II	Sem. III	Sem. IV	Sem. V	Sem. VI	Sem. VII	Sem. VIII		
A	Humanities And Social Sciences	04			04		02		10-20	10
B	Basic Sciences	19	04	04					30-40	27
C	Engineering Sciences	27	22						30-40	49
D	Professional Subjects-Core			21	17	20	09		60-80	67
E	Professional Subjects-Elective				4	04	07	08	20-30	23
F	Other Elective- Inter department						04	04	10-20	08
G	Project Work+ Seminar + Project tour					02	02	12	20-30	16
	Total no of subjects/components	16	09	08	08	09	09	04		
	Total No of Credits	50	26	25	25	26	24	24		200

CHAIRMAN/BOS 27/5

DEAN (ACADEMIC)

CHAIRMAN/ACADEMIC COUNCIL

Scanned with CamScanner

Dr. A.I.T./ML/ 064
Date: 25-06-2018

Dr. Ambedkar Institute of Technology, Bengaluru-56

Department of Medical Electronics

BoS-9 : 23-06-2018

Proceedings of the BoS-9 meeting

The BoS Chairperson welcomed the members for the meeting. There was a brief self-introduction by all the members. The BoS chair gave an introductory remark about the autonomy practice and earlier BoS.

The chair also brought-forth the outcomes from the meetings and the consequent meetings of the internal BoS. The BoS approved all the suggestions from the internal Bos.

The modifications suggested and outcome of the meetings are as listed below:

- The laboratory experiments need not be title specific, only objectives to be given.
- Sensors and Measurement (ML34)-The study of equipments could be practical oriented.
- Microcontrollers (ML41) - Theory sessions could also be made hands on using the simulation software this gives a better understanding of the theoretical aspects.
- Medical science (ML44) - Anatomy and Physiology laboratory may be setup displaying models of human systems. And theory could be supported by animation videos
- Embedded C (ML551) - IOT applications to be added as one unit and the introductory unit to be made as review only. Title of the subject to be modified as Embedded Systems & IOT. And industry expert from Bosch offered assistance in framing the IOT syllabus
- Lasers and Fiber Optics in Medicine (ML64) -Reframing/Re-organization of the Units in the syllabus.
- Wherever necessary the introduction if repeating it could be given as review for minimum hrs. and questions need not be asked on review portions.

The board approved the proposed scheme for the revised curriculum to be effective from 2018-19. The board also approved the list of BOE members.

The Chairperson thanked all the members for their commitment and contribution in revising the syllabus.

Shanthi. B

Signature of the Chairman

Head of the Department
Dept. of Medical Electronics
Dr. Ambedkar Institute of Technology
Bangalore 560 056.

Scanned with CamScanner

Dr. Ambedkar Institute of Technology, Bangalore-560056

Department of Medical Electronics Engineering

Details of Curriculum Design Under Autonomy for UG Program 2015-16 Batch

BOS 9 (2018) Date: 23/6/2018

Sl No	Category	Number of Credits							Credit range as per VTU guideline (200 Credits)	Actual Credit Allocation
		Sem I & II	Sem III	Sem. IV	Sem. V	Sem. VI	Sem. VII	Sem. VIII		
A	Humanities And Social Sciences	04			04		02		10-20	10
B	Basic Sciences	19	04	04					30-40	27
C	Engineering Sciences	27	22						30-40	49
D	Professional Subjects-Core			21	21	18	11		60-80	71
E	Professional Subjects-Elective					04	07	08	20-30	19
F	Other Elective- Inter department						04	04	10-20	08
G	Project Work+ Seminar + Project tour					02	02	12	20-30	16
	Total no of subjects/components	16	09	08	09	09	9	04		
	Total No of Credits	50	26	25	25	26	24	24		200

CHAIRMAN/BOS DEAN (ACADEMIC) CHAIRMAN/ACADEMIC COUNCIL

Scanned with CamScanner

Dr. Ambedkar Institute of Technology, Bangalore-560056

Department of Medical Electronics Engineering

Details of Curriculum Design Under Autonomy for UG Program 2016-17 Batch

BOS 9 (2018) Date: 23/6/2018

Sl. No	Category	Number of Credits							Credit range as per VTU guideline (200 Credits)	Actual Credit Allocation
		Sem. I & II	Sem. III	Sem. IV	Sem. V	Sem. VI	Sem. VII	Sem. VIII		
A	Humanities And Social Sciences	04			04		02		10-20	10
B	Basic Sciences	19	04	04					30-40	27
C	Engineering Sciences	27	22						30-40	49
D	Professional Subjects-Core			21	17	20	09		60-80	67
E	Professional Subjects-Elective				4	04	07	08	20-30	23
F	Other Elective- Inter department						04	04	10-20	08
G	Project Work+ Seminar + Project tour					02	02	12	20-30	16
	Total no of subjects/components	16	09	08	08	09	09	04		
	Total No of Credits	50	26	25	25	26	24	24		200

CHAIRMAN/BOS DEAN (ACADEMIC) CHAIRMAN/ACADEMIC COUNCIL

Scanned with CamScanner

Dr. Ambedkar Institute of Technology, Bangalore-560056

Department of Medical Electronics Engineering

Details of Curriculum Design Under Autonomy for UG Program 2017-18 Batch

BOS 9 (2018) Date: 23/6/2018

Sl No	Category	Number of Credits							Credit range as per VTU guideline (200 Credits)	Actual Credit Allocation
		Sem. I & II	Sem. III	Sem. IV	Sem. V	Sem. VI	Sem. VII	Sem. VIII		
A	Humanities And Social Sciences	04			04		02		10-20	10
B	Basic Sciences	19	04	04					30-40	27
C	Engineering Sciences	27	22						30-40	49
D	Professional Subjects-Core			21	17	20	09		60-80	67
E	Professional Subjects-Elective				4	04	07	08	20-30	23
F	Other Elective- Inter department						04	04	10-20	08
G	Project Work+ Seminar + Project tour					02	02	12	20-30	16
	Total no of subjects/components	16	09	08	08	09	09	04		
	Total No of Credits	50	26	25	25	26	24	24		200

CHAIRMAN/BOS

DEAN (ACADEMIC)

CHAIRMAN/ACADEMIC COUNCIL

Scanned with CamScanner