Dr. AMBEDKAR INSTITUTE OF TECHNOLOGY
BANGALORE – 56

Date: 23.08.2010

Minutes of the 1st Academic Council meeting held on 21st August 2010 at 10.30 am in the Board room of Dr. AIT

Members Present

Sl No	Constitution	Nature	Name
1	The Principal of the College	Chairperson	Dr P.Martin Jebaraj
2	All the Heads of Department in the College	Members	Dr C.Nanjunda Swamy Dr B.M.Nandeeshaiah Dr B.V.Sumangala Dr Meenakshi Dr Shivakumar Prof Siddaraju Dr Rajendra Prof Prabha Prof Manjunath.A.P. Dr K.L.Savitramma Dr V.Bheemaraju Dr Sooryanarayana Rao
3	Four teachers of the college representing different levels of teaching staff by rotation on the basis of seniority of service in the college, to be nominated by the Principal	Members	1) Dr Manjunath Hegde 2) Dr T.Sreenivasulu Reddy 3) Prof G.Devaraju 4) Smt. ~~Leena Giri~~ Vijayalaxmi Patil
4	Not less than four experts from outside the college representing such areas as Industry, R and D labs, Technical Education,	Members	1) Dr S. Seetharamu Additional Director CPRI, Bangalore 2) Dr G.R.Nagabhushana Former Chairman HVE, IISc, Bangalore 3) Mr Rajendra Prasad Vice President Electro Systems Associates Pvt Ltd, Bangalore 4) Mr B.N.Satyesh Senior Vice-president Tejas Network Ltd Bangalore

5	Three nominees of the University,	Members	1.Dr T.V.Govindaraju Principal Shirdi Sai Engg College 2.Dr H.R.Yashavanth Principal, SEACE Bangalore 3.Dr V.R.Manjunath Principal Sapthagiri College of Engg Bangalore
6	A faculty member, nominated by the Principal	Member Secretary	Dean (Academic) Dr B.V.Sumangala

Members Absent

1. Dr. G.R. Nagabhushana
2. Dr. Yeshovanth

Principal welcomed all the members of the committee and they were introduced. He explained about the constitution of the committee, tenure of the committee and the duties and responsibilities. He also explained about the courses of the Institution going for autonomy and briefed about the various procedures followed to make the Institution prepare for the implementation of academic autonomy.

Principal explained the various issues related to academic structure of autonomy at Dr. AIT with reference to the guidelines by VTU. The details of the deliberation made by experts are as follows:-

Agenda 1 :
Recommendations of guidelines to all UG programmes – Autonomy structure, a) Credit system, b) Grading system, c) Eligibility criteria etc.

The following resolutions were made by the committee and the regulations are recommended and was proposed to place in GOVERNING BODY for approval.

a. Credit System
The committee recommended the following credits structure based on VTU guidelines

- BE Degree Programme – Entry in I year
  - 200 Credits
- BE Degree Programme – Entry in II year
  - Lateral Entry
  - 150 Credits (with bridge course – Mathematics)

b. Academic Calendar

The major events with the corresponding period for execution are:-

Main Semester (Odd)   : 19 Weeks
Recess   : 2 Weeks
Main Semester (Even)   : 19 Weeks
Recess   : 2 Weeks
Supplementary Semester   : 8 Weeks
Recess   : 2 Weeks
Total   : 52 Weeks.

Make-up examination after the Semester End Examinations (SEE) as per notification.

c. Evaluation Methodology

The evaluation consists of two components

1. Continuous Internal Evaluation – CIE for 50 Marks
2. End Semester Evaluation – SEE for 50 Marks – It is essential to obtain minimum requirement is 40 % in both CIE and SEE to qualify for appearing for examination and to get pass grade in a subject respectively.

d. Grading Methodology

The absolute grading system is adopted in our case. The various grades are generated based on the examination rules out of 100 and is shown in table. These grades are then converted to grade points and the SEPA is determined.

Level	Out-standing	Excellent	Very Good	Good	Average	Poor	Fail
Grade	S	A	B	C	D	E	F
Grade Points	10	09	08	07	05	04	00
Score (Marks) Range (%)	90-100	75-89	60-74	50-59	45-49	40-44	<40

Grades
- W – Withdrawal of any course
- I – Not writing SEE for a genuine reason
- X – Scoring >80% in CIE but getting F (fail) grade in SEE

e. Eligibility Criteria

A student can carry 4 subjects at the end of any even semester which includes
- Failed subjects and
- 'Not Eligible' subjects to write SEE due to shortage of marks in CIE(< 20 marks) or shortage of attendance (< 85%)

Agenda 2. Recommendation of BOS committees for various Departments

The Board of Studies for all the 13 Departments were formed and placed in GB for approval

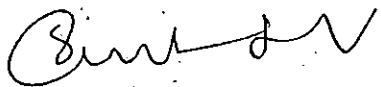### Agenda 3 : Recommendations for common BOE for I year
It was proposed to have a common Board of Examiners for I year.

Agenda 4 : Recommendations for all rules and regulations pertaining to Examination
After fully going through the document the examination rules and regulations are recommended by Academic Council

Agenda 5 : Any Other subject

Dr Govindaraju suggested to increase the minimum requirement for CIE for practicals.

DEAN (ACADEMIC)

Principal
Dr. Ambedkar Institute of Technology
Bangalore-560 056

Dr. Ambedkar Institute of Technology

Department of Medical Electronics Engineering

The enclosed documents are verified and approved.

A.P.

HOD

Dr. Ambedkar Institute of Technology, Bengaluru-560 056
SCHEME OF TEACHING AND EXAMINATION
B.E Medical Electronics Batch 2018-2022
Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

III SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	BC	18MA31	Transforms and Applications	Mathematics	3	0	0	03	50	50	100	3
2	PC	18ML31	Analog Electronic Circuits	ML	3	0	0	03	50	50	100	3
3	PC	18ML32	Logic Design & VHDL	ML	2	2	0	03	50	50	100	3
4	PC	18ML33	Medical Science	ML	3	0	0	03	50	50	100	3
5	PC	18ML34	Network Analysis	ML	2	2	0	03	50	50	100	3
6	PC	18ML35	Sensors and Measurement	ML	3	0	0	03	50	50	100	3
7	PC	18ML36	OOPs & Data Structure	ML	3	0	0	03	50	50	100	3
8	PC	18MLL37	Analog Electronic Circuits Lab	ML	0	0	2	02	50	50	100	1
9	HS	18MLL38	Logic Design Lab	ML	0	0	2	02	50	50	100	1
10	MC	18HS31/32	CIPH/ Env.Studies	Humanities	2			02	50	-	50	1
11	MC	18HS33	Soft Skills	Humanities	2			02				-
			TOTAL		23	04	04	29	500	450	950	**24**

			Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs									
12	MC	18MAD31	Advance Mathematics - I	Mathematics	02	01	--	03	50		50	-

(a) **The mandatory non - credit courses** Advance Mathematics I and II prescribed at III and IV semesters respectively, to lateral entry Diploma holders admitted to III semester of BE programs shall compulsorily be registered during respective semesters to complete all the formalities of the course and appear for SEE examination.

(b) **The mandatory non - credit courses** Advance Mathematics I and II, prescribed to lateral entrant Diploma holders admitted to III semester of BE programs, are to be completed to secure eligibility to VII semester. However, they are not considered for vertical progression from II year to III year of the programme but considered as head of passing along with credit courses of the programme to eligibility to VII semester.

Note: BC: Science Course, PC: Professional Core. HS: Humanities, MC: Mandatory Course.

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IV SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture L	Tutorial T	Practical/ Drawing P	Duration in hours	CIE Marks	SEE Marks	Total Marks	
1	BC	18MA41	Probability, Numerical and Optimisation Technique	Mathematics	3	0	0	03	50	50	100	3
2	PC	18ML41	Microcontrollers	ML	3	0	0	03	50	50	100	3
3	PC	18ML42	Communication System	ML	3	0	0	03	50	50	100	3
4	PC	18ML43	Signals & Systems	ML	3	2	0	03	50	50	100	4
5	PC	18ML44	Biomedical Instrumentation	ML	4	0	0	03	50	50	100	4
6	PC	18ML45	Linear IC's And Applications	ML	3	0	0	03	50	50	100	3
7	PC	18MLL46	OOPS & Data Structure Lab	ML	0	0	2	03	50	50	100	1
8	PC	18MLL47	Microcontroller Lab	ML	0	0	2	03	50	50	100	1
9	PC	18MLL48	Linear Integrated Circuits Lab	ML	0	0	2	03	50	50	100	1
10	HS	18HS41/42	CIPH/ Env. Studies	Humanities	2	0	0	02	50	-	50	1
11	MC	18HS43	Employability Skills	Humanities	2	0	0	-				-
			TOTAL		23	2	6	29	500	450	950	**24**

Course prescribed to lateral entry Diploma holders admitted to III semester of Engineering programs

| 12 | MC | 18MAD31 | Advance Mathematics - I | Mathematics | 02 | 01 | -- | | 50 | | 50 | - |

(a) **The mandatory non - credit courses** Advance Mathematics I and II prescribed at III and IV semesters respectively, to lateral entry Diploma holders admitted to III semester of BE programs shall compulsorily be registered during respective semesters to complete all the formalities of the course and appear for SEE examination.

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V SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Theory Lecture (L)	Tutorial (T)	Practical/ Drawing (P)	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	HS	18HS51/52	M&E/IPR	Humanities	3	0	0	03	50	50	100	3
2	PC	18ML51	Digital Image Processing	ML	3	0	0	03	50	50	100	3
3	PC	18ML52	Medical Imaging Systems	ML	3	0	0	03	50	50	100	3
4	PC	18ML53	Physiological Control Systems	ML	3	2	0	03	50	50	100	4
5	PC	18ML54	Digital Signal Processing	ML	3	0	0	03	50	50	100	3
6	PE	18ML55X	Professional Elective-1	ML	3	0	0	03	50	50	100	3
7	OE	18MLE56	Open Elective -A	ML	3	0	0	03	50	50	100	3
8	PC	18MLL57	Biomedical Instrumentation Lab	ML	0	0	2	03	50	50	100	1
9	PC	18MLL58	Digital Signal Processing Lab	ML	0	0	2	03	50	50	100	1
10	PC	18MLL59	Biomedical Digital Signal & Image Processing Lab	ML	0	0	2	03	50	50	100	1
			TOTAL		21	2	6	30	500	500	1000	**25**

Note: BC: Science Course, PC: Professional Core. HS: Humanities, MC: Mandatory Course.

Professional Elective -1	
18ML551	Embedded Systems & IOT applications
18ML552	Clinical Engineering
18ML553	ARM Processor

Open Elective :18 MLE01 Biomedical Engineering

Students can select any one of the open electives (Please refer to consolidated list of Dr AIT for open electives) offered by any Department. Selection of an open elective is not allowed provided,
- The candidate has studied the same course during the previous semesters of the programme.
- The syllabus content of open elective is similar to that of Departmental core courses or professional electives.
- A similar course, under any category, is prescribed in the higher semesters of the programme.

Registration to electives shall be documented under the guidance of Programme Coordinator

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B.E Medical Electronics Batch 2018-2022
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VI SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	HS	18HS61/62	M&E/IPR	Humanities	3	0	0	03	50	50	100	3
2	PC	18ML61	Biomedical Digital Signal Processing	ML	3	0	0	03	50	50	100	3
3	PC	18ML62	Laser & Fibre Optics in Medicine	ML	3	0	0	03	50	50	100	3
4	PC	18ML63	Biomedical Equipments	ML	3	0	0	03	50	50	100	3
5	PC	18ML64	Medical Physics	ML	3	0	0	03	50	50	100	3
6	PE	18ML65X	Professional Elective -2	ML	3	0	0	03	50	50	100	3
7	OE	18MLE66	Open Elective -B	ML	3	0	0	03	50	50	100	3
8	PC	18MLL67	Operation & Testing of Medical Devices Lab	ML	0	0	2	02	50	50	100	1
9	MP	18MLMP68	Mini-project	ML	-	-	-	03	50	50	100	2
10	INT	18MLI69	Industry Internship	(To be carried out during the intervening vacations of VI & VII semester)	-	-	-	-	-	-	-	-
			TOTAL		21	0	2	26	450	450	900	**24**

Note: PC: Professional core, PE: Professional Elective, OE: Open Elective, MP: Mini-Project, INT: Internship.

Hospital Training has to be carried out for a period of 10 working days after the completion of 5th semester examination

Professional Elective-2		Open Elective - B	
18ML651	Infrared Imaging & Applications	18MLE02	Medical Informatics
18ML652	Medical Informatics		
18ML653	VLSI Design		

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VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical / Drawing	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	HS	18HS71/72	CMEP / OSHA	IEM/CV	2	0	0	02	50	50	100	2
2	PC	18ML71	Neural Network & Machine Learning	ML	3	0	0	03	50	50	100	3
3	PC	18ML72	Medical Device Regulations	ML	3	0	0	03	50	50	100	3
4	PC	18ML73	Bio- Mechanics	ML	3	0	0	03	50	50	100	3
5	PE	18ML74X	Professional Elective -3	ML	3	0	0	03	50	50	100	3
6	PE	18ML75X	Professional Elective -4	ML	3	0	0	03	50	50	100	3
7	OE	18MLE76	Open Elective -B	ML	3	0	0	03	50	50	100	3
8	PC	18MLL77	Java Lab	ML	0	0	2	02	50	50	100	1
9	Project	18MLP78	Project Work Phase - 1	ML	--	--	2	-	50	-	50	2
10	INT	18MLI79	Internship	(If not completed after VI semester examinations, it has to be carried out during the intervening vacations of VII and VIII semesters)	--	--		--	--	--	--	--
			TOTAL		20	0	4	22	450	400	850	**23**

Note: PC: Professional Core, PE: Professional Elective, OE: Open Elective, INT: Internship, MC: Mandatory Course

Internship: All the students admitted to III year of BE have to undergo mandatory internship of 4 weeks during the vacations of VI and VII semesters and /or VII and VIII semesters. A SEE examination will be conducted during VIII semester and prescribed credits shall be added to VIII semester. Internship is considered as a head of passing and is considered for the award of degree. Those, who do not take-up/complete the internship will be declared as failed and have to complete during subsequent SEE examination after satisfy the internship

CMEP: Cost Management of Engg. Projects, OSHA: Occupational Safety and Health Administration

Professional Elective -3		Professional Elective - 4	
18ML741	Biosensors & BioMEMS	18ML751	Biomaterials & Artificial Organs
18ML742	Rehabilitation Engineering	18ML752	Bio-Metric Systems
18ML743	Picture Archiving & Communication Standards	18ML753	Biomedical Nanotechnology

Open Elective- C	
18MLE76	Medical Devices Safety and Regulations

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VIII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week Theory Lecture L	Tutorial T	Practical/ Drawing P	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
1	HS	18HS81/82	CMEP / OSHA	IEM /CV	2	--	--	02	50	50	100	2
2	Project	18MLP81	Project Work Phase -2		--	--	2	03	50	50	100	10
3	Seminar	18MLS82	Technical Seminar		--	--	2	-	50	-	50	1
4	INT	18MLI83	(Completed during the intervening vacations of VI and VII semesters and /or VII and VIII semesters.)	(Completed during the intervening vacations of VI and VII semesters and /or VII and VIII semesters.)				--	50	50	100	2
			TOTAL		2	--	4	05	200	150	350	**15**

Note: PC: Professional Core, PE: Professional Elective, OE: Open Elective, INT: Internship, MC: Mandatory Course

CMEP: Cost Management of Engg. Projects, OSHA: Occupational Safety and Health Administration