Dr. Ambedkar Institute of Technology, Bangalore – 56

Department of Electronics & Instrumentation Engineering

The attached documents are valid and approved.

Prof. & Head

Professor & Head
Department of Electronics & Instrumentation Engineering
Dr. Ambedkar Institute of Technology
Bangalore - 560 056.

AIT/Dean/030/10-11 (1) III-5

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, Bengaluru-560 056

SCHEME OF TEACHING AND EXAMINATION from Academic Year 2018-19

B.E Electronics and Instrumentation Engineering

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 & Applications	Mathematics	2	2	--	03	50	50	100	3
2	PC	18EI31	Analog Electronic Circuits	EI	3	0	--	03	50	50	100	3
3	PC	18EI32	Digital System Design	EI	4	0	--	03	50	50	100	4
4	PC	18EI33	Network Analysis	EI	3	2	--	03	50	50	100	4
5	PC	18EI34	Measurements and Instrumentation	EI	3	0	--	03	50	50	100	3
6	PC	18EI35	Sensors & Applications	EI	4	0	--	03	50	50	100	4
7	PC	18EIL36	Analog Electronic Circuits Lab	EI	--	0	2	03	50	50	100	1
8	PC	18EIL37	Digital System Design Lab	EI	--	0	2	03	50	50	100	1
9	HS	18HS31	Constitution of India Professional Ethics and Human Rights/ / Env. Studies	Hu/Civ	1	--	--	02	50	50	100	1
10	MC	18HS33	Soft skills (MC)	Humanities	04		--	03	50	-	50	0
				TOTAL	**24**	**04**	**04**	**29**	**500**	**450**	**950**	**24**

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

11	MC	18MAD31	Advance Mathematics - I	Mathematics	02	01	--	03	50		50	0

Note: HODs are informed to accommodate one more laboratory in addition to the above courses if needed, without altering the total number of credits (TOTAL: 24).

(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. Hu: Humanities, MC: Mandatory Course.

Dr. Ambedkar Institute of Technology, Bengaluru-56

SCHEME OF TEACHING AND EXAMINATION from Academic Year 2018-19

B.E Electronics and Instrumentation Engineering

Outcome Based Education (OBE) and Choice Based Credit System (CBCS)

IV 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	18MA41	Probability, Numerical & Optimization Techniques	Mathematics	2	2	--	03	50	50	100	3
2	PC	18EI41	Process Instrumentation	EI	3	0	--	03	50	50	100	3
3	PC	18EI42	Control Systems	EI	4	0	--	03	50	50	100	4
4	PC	18EI43	Microcontroller and Applications	EI	4	0	--	03	50	50	100	4
5	PC	18EI44	Signals and Systems	EI	3	2	--	03	50	50	100	4
6	PC	18EI45	Linear IC's & Applications	EI	3	0	--	03	50	50	100	3
7	PC	18EIL46	Sensors and Signal Conditioning Circuits Lab	EI	--	0	2	03	50	50	100	1
8	PC	18EIL47	Microcontroller Lab	EI	--	0	2	03	50	50	100	1
9	HS	18HS41/42	Constitution of India Professional Ethics and Human Rights/ Env. Studies	Hum/Civ	1	--	--	02	50	50	100	1
10	MC	18HS43	Employability skills (MC)	Humanities	04		--	03	50	-	50	0
				TOTAL	**24**	**04**	**04**	**29**	**500**	**450**	**950**	**24**

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

11	MC	18MAD41	Advance Mathematics - II	Mathematics	02	01	--	03	50		50	0

Note: HODs are informed to accommodate one more laboratory in addition to the above courses if needed, without altering the total number of credits (TOTAL: 24).

(a) The mandatory non - credit courses Advance Mathematics I and II prescribed at III and IV semesters respectively, to lateral entrant 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. Hu: Humanities, MC: Mandatory Course.ENV: Environmental Studies, CIP: Constitution of India Professional Ethics and Human Rights

Dr. Ambedkar Institute of Technology, Bengaluru-560 056

SCHEME OF TEACHING AND EXAMINATION from Academic Year 2021-22

B.E Electronics and Instrumentation Engineering

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

Academic Year of Admission 2019-20

V 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	18HS51/52	M&E / IPR (title as per BOS decision)	Hu	3	-	--	03	50	50	100	3
2	PC	18EI51	Digital Signal Processing	EI	3	2	--	03	50	50	100	4
3	PC	18EI52	Communication Technology	EI	3	-	--	03	50	50	100	3
4	PC	18EI53	Process Automation and Control	EI	3	--	--	03	50	50	100	3
5	PC	18EI54	C++ and Data Structures	EI	3	2	--	03	50	50	100	4
6	PE	18EI55X	Elective -1	EI	3	--	--	03	50	50	100	3
7	OE	18EI56X	Open Elective -A	-	3	--	--	03	50	50	100	3
8	PC	18EIL57	Digital Signal Processing Lab	EI	--	--	2	03	50	50	100	1
9	PC	18EIL58	Control systems and simulation Lab	EI	--	--	2	03	50	50	100	1
				TOTAL	21	04	4	27	450	450	900	25

Note: Hu: Humanities, PC: Professional Core, MC: Mandatory Course,

Electives

Course code	Professional Electives - 1
18EI551	Biomedical Instrumentation
18EI552	Power Electronics and Drives
18EI553	Digital Image Processing
18EI554	Automotive Electronics
OPEN ELECTIVE-A	
18EI561	Sensors& Applications
18EI562	Virtual Instrumentation

Open Elective - A

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 Departmentalcore 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/ Mentor.

Dr.Ambedkar Institute of Technology, Bengaluru-560 056

SCHEME OF TEACHING AND EXAMINATION from Academic Year2021-22

B.E Electronics and Instrumentation Engineering

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

Academic Year of Admission 2019-20

VI SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/	Duration inhours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	HS	18HS61/62	M&E/IPR	Hu	3	--	--	03	50	50	100	3
2	PC	18EI61	PLC and SCADA	EI	4	--	--	03	50	50	100	4
3	PC	18EI62	Embedded Systems using ARM Controller	EI	4	--	--	03	50	50	100	4
4	PC	18EI63	Advanced Control System	EI	3	--	--	03	50	50	100	3
5	PE	18EI64X	Professional Elective -2	EI	3	--	--	03	50	50	100	3
6	OE	18EI65X	Open Elective -B	-	3	--	--	03	50	50	100	3
7	PC	18EIL66	Embedded System Design Lab	EI	--	--	2	03	50	50	100	1
8	PC	18EIL67	Virtual Instrumentation Lab	EI	--	--	2	03	50	50	100	1
9	MP	18EIM68	Mini-project					03	50	50	100	2
10	INT	18 EII69	Industry Internship	(To be carried out during the intervening vacations of VI and VII semesters)				--	--	--	--	--
				TOTAL	**20**	**0**	**4**	**24**	**450**	**450**	**900**	**24**

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

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 University examination will be conducted during VIII semester and prescribed credit are 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 internshipwill be declared as failed and have to complete during subsequent University examination after satisfy the internship requirements.

Electives

Course code	Professional Electives - 2
18 EI 641	Aircraft Instrumentation
18 EI 642	Robotics and Automation
18 EI 643	Machine Learning using PythonProgramming
18 EI 644	VLSI Design
Open Elective - B	
18EI651	Air Craft Instrumentation
18EI652	Robotics and Applications

Open Elective - B

Students can select any one of the open electives (Please refer to consolidated list of DrAIT 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 theprogramme.
- The syllabus content of open elective is similar to that of Departmental core courses orprofessional electives.
- A similar course, under any category, is prescribed in the higher

	semesters of theprogramme. Registration to electives shall be documented under the guidance of ProgrammeCoordinator/ Mentor.

Dr.Ambedkar Institute of Technology, Bengaluru-560 056

SCHEME OF TEACHING AND EXAMINATION from Academic Year 2020-21

B.E Electronics and Instrumentation Engineering

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

VII SEMESTER

Sl. No	Course and Course code		Course Title	Teaching Department	Teaching Hours /Week			Examination				Credits
					Theory Lecture	Tutorial	Practical/	Duration inhours	CIE Marks	SEE Marks	Total Marks	
					L	T	P					
1	MC	18HS71/72	CMEP /OSHA	IM/CV	2	--	--	03	50	50	100	2
2	PC	18EI71	IOT and Wireless Sensor Networks	EI	4	--	--	03	50	50	100	4
3	PC	18EI72	Industrial Data Communication & DCS	EI	4	--	--	03	50	50	100	4
4	PE	18EI73X	Professional Elective -3	EI	3	--	--	03	50	50	100	3
5	PE	18EI74X	Professional Elective -4	EI	3	--	--	03	50	50	100	3
6	OE	18EI75X	Open Elective -C	-	3	--	--	03	50	50	100	3
7	PC	18EIL76	Process Control and Automation Lab	EI	--	--	2	03	50	50	100	1
8	PC	18EI L77	IOT Lab	EI	--	--	2	03	50	50	100	1
9	Project	18EIP78	Project Work Phase - 1	EI	--	--	2	03	50	50	100	2
10	INT	18EII79	Internship	(If not completed after VI semester examinations, it has to becarried out during the intervening vacations of VII and VIII semesters)				--	--	--	--	--
			TOTAL	**19**	**--**		**6**	**27**	**450**	**450**	**900**	**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 requirements.

Electives

Course code	**Professional Electives - 3**	Open Elective - C
18 EI731	Analytical Instrumentation	Students can select any one of the open electives (Pleaserefer to consolidated list of Dr. AIT for open electives) offered by any Department. Selection of an open elective is not allowed provided,
18 EI732	Artificial Intelligence in IndustrialAutomation	
18 EI733	Biomedical Signal Processing	
18 EI734	Neural Networks & Applications	

Course code	Professional Electives - 4
18 EI741	Lasers & Optical Instrumentation
18 EI742	Multimedia Communication
18EI743	Adaptive Signal Processing
18EI744	Micro Systems and Nanotechnology
	Open Elective - C
18EI751	Optical Instrumentation & Applications
18EI752	Instrumentation & measurement Techniques

- 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/ Mentor.

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

Dr.Ambedkar Institute of Technology, Bengaluru-560 056

SCHEME OF TEACHING AND EXAMINATION from Academic Year 2020-21

B.E Electronics and Instrumentation Engineering

Outcome Based Education(OBE) and Choice Based Credit System (CBCS)

VIII 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	MC	18XX81	CMEP /OSHA	IM /CV	4	--	--	03	50	50	100	2
2	Project	18EIP84	Project Work Phase - 2		--	--	20	03	50	50	100	10
3	Seminar	18EIS85	Technical Seminar		--	--	2	03	50	50	100	1
4	INT	18EII86	Internship	(Completed during the intervening vacations of VI and VII semesters and /or VII and VIII semesters.)				03	50	50	100	2
				TOTAL	**04**	**--**	**22**	**12**	**200**	**200**	**400**	**15**

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

Electives

Internship: Those, who have not pursued /completed the internship will be declared as failed and have to complete during subsequent SEE examination after they satisfy the internship requirements.

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