Board of Studies of First Year Engineering Program

(2021-22)

Date: 16.04.2021   **Time: 11.00 a.m.**   **Venue: Senate Hall (Main Building)**

Minutes of the Meeting

Following are the minutes of the BOS meeting held on the 16th April, 2021.

1. The schemes for the 1st and 2nd semesters for all the Engineering Programs have been reviewed.

2. All the Engineering courses syllabus resolved in respective BOS of each department have been revisited for overall understanding for all the Members.

3. Maths, Physics and Chemistry courses syllabus have been thoroughly discussed.

4. BOS resolved to accept both the Scheme and Syllabus with due implementation of suggestions.

5. Resolved to ratify Humanities department course title of Social Innovation as Design Thinking for Social Innovation, which has been implemented in previous academic year.

16.04.2021   First Year Engineering Program Coordinator

                                                       Prof.T.Veeramahantesh Swamy

Department of Automation & Robotics
Structure of Board of Studies 2021-22, 05th June 2021

S. No.	Category	Nomination of the Committee		Name of the Person	Signature
1	Concerned Head of the Department/ School/ Center	Chairperson	1	Arunkumar C Giriyapur	Present
2	ONE Professor, ONE Associate Professor and ONE Assistant Professor from the Department/ School/ Center, nominated by the Dean Academic Affairs	Members	1	Dr. Jyoti Bali	Present
			2	Dr. Vinod Kumar V Meti	Present
			3	Dr. Sachin Karadgi	Present
			4	Mr. Nagaraj.M.B	Present
3	ONE PG Coordinator for each of the PG programmes offered by the Department/ School/ Center	Member(s)	1	NILL	
			2	NILL	
3	TWO Subject experts from outside the college nominated by the Vice-Chancellor	Members	1	Dr. Dhanesh Manik, IIT Bombay.	Present
4	TWO representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Members	1	Mr. Jitendra Kataria, Beckhoff Automation India Ltd.Pune	Present
			2	Dr. Abhijit Lele, Robert Bosch India	Present
5	ONE Post-graduate meritorious alumnus nominated by the Vice-Chancellor	Member	1	Mr. Supreet Kamatagi	Present
6	ONE Student Member representing each of the program offered by the Department/ School/ Center	Invited Member	1	UG Student (Not Applicable at present)	
			2	PG Student (Not Applicable at present)	
			3	PhD Student (Not Applicable at present)	

The concerned Chairman of Board of Studies may invite additional experts to the Departmental Board of Studies as deemed fit.

A Departmental Board of Studies shall:
Meet at least once a year, sufficiently before the commencement;
Prepare detailed curricula and syllabi of concerned Programmes and submit to the Academic Council for approval and publication; and
Revise the curricula and syllabi from time to time and submit to the Academic Council for approval and publication

Structure of Board of Studies 2021-22, 05th June 2021

Sl. No	Members, BOS	Signature
1	Prof. A. C. Giriyapur, Chairperson, HOD, A & R Dept.	PRESENT
2	Dr. Dhanesh Manik, IIT Bombay.	PRESENT
3	Mr. Abhijit Lele, Robert Bosch India.	ABSENT
4	Mr. Jitendra Kataria, Beckhoff Automation India . Ltd. Pune	PRESENT
5	Mr. Supreet Kamatagi, Griffyn Robotech Pvt. Ltd.	PRESENT
6	Dr. Jyoti Bali, A & R Dept.	PRESENT
7	Dr. Vinod Kumar V Meti, A & R Dept.	PRESENT
8	Dr. Sachin Karadgi, A & R Dept.	PRESENT
9	Mr. Nagaraj M B, A & R Dept.	PRESENT

KLE Technological University

Title: Curriculum Structure-Overall
Program: B.E

Total Program Credit:178(134+44)

Page 1 of 1
Year: 2020-24

	III	IV	V	VI	VII	VIII	
Courses Semester wise	Statistics And Integral Transforms 15EMAB201 (4-0-0) CALCULUS AND INTEGRAL TRANSFORMS (4-0-0)	Numerical methods and partial differential equations 15EMAB206 Vector calculus and differential equations 15EMAB241 (4-0-0)	Machine Learning & ROS 18EARC301 (3-0-0)	Hydraulics & Pneumatics 18EARC308 (4-0-0)	Industrial Data Networks 16EARC401 (4-0-0)	Professional Elective -6 XXEAREXXX (3-0-0)	Internship-Training 17EARI493 (0-0-6)
	Analog & Digital Electronic circuits 18EARC201 (4-0-0)	Machine Design 18EARC206 (3-0-0)	Programming Industrial Automation Systems 18EARC302 (4-0-0)	Professional Elective -1 XXEAREXXX (3-0-0)	Professional Elective -3 XXEAREXXX (3-0-0)	Open Elective (3-0-0)	
	Kinematics Of Machinery 19EARC202 (4-0-0)	Control Systems 19EARC207 (4-0-0)	Real time Embedded Systems 18EARC304 (4-0-0)	Professional Elective -2 XXEAREXXX (3-0-0)	Professional Elective -4 XXEAREXXX (3-0-0)	Capstone Project 19EARW402 Industry Internship –Project 17EARW494 (0-0-11)	
	Data Structure Algorithm Design and Analysis 18EARC203 (4-1-0)	Microcontrollers Programming & Interfacing 18EARC208 (4-0-0)	Mechatronics System Design 18EARC304 (4-0-0)	Hydraulics And Pneumatics Lab 16EARP302 (0-0-1)	Professional Elective -5 XXEAREXXX (3-0-0)		
	Mechanics Of Materials 18EARC204 (3-0-0)	Object Oriented Programming & DBMS 19EARC209 (4-0-0)	Measurement Systems 18EARC305 (3-0-0)	Mechatronics & Measurements Lab 18EARP304 (0-0-1)	Senior Design Project 19EARW401 (0-0-6)		
	Manufacturing Technology 18EARC205 (3-0-0)	Robot Analysis & Design 18EARC210 (4-0-0)	Machine Learning & ROS Lab 18EARP301 (0-0-1)	Real Time Embedded Systems Lab 16EARP307 (0-0-1)	CIPE 15EHSN401 (0-0-0)		
	Analog & Digital electronics lab 18EARP201 (0-0-1)	Manufacturing & Metrology lab 16EARP205 (0-0-1)	Programming Industrial Automation Systems Lab 18EARP302 (0-0-1)	PA & LR 16EHSC301 (3-0-0)			
	Kinematics Of Machinery lab 18EARP202 (0-0-1)	Microcontrollers Programming & Interfacing Lab 18EARP208 (0-0-1)	Industrial Robotics Lab 18EARP303 (0-0-1)	Minor Project 17EARW302 (0-0-6)			
	Machine Drawing Lab 19EARP203 (0-0-1)	Object Oriented Programming & DBMS Lab 19EARP209 (0-0-1)	Mini Project 18EARW301 (0-0-3)				
Credits	26	26	24	22	19	17	

Program Head

Professional Elective – 3,4-,5, and 6		
Automation	**Informatics & Control**	**Robotics**
Design of automatic machinery 17EARE402	AI for Autonomous Robots 17EARE301	Mobile robotics & Perception 17EARE401
Power electronics, motors and drives 16EARE301	Advanced Microcontroller 17EARE403	
Digital System Design & FPGA Programming 17EARE304	Computer Vision & Digital Image Processing 15EARE302	
	Smart Manufacturing 17EARE404	

Title: Curriculum Structure-Overall Program: B.E	Total Program Credit:178(134+44)	Page 1 of 1 Year: 2019-23

	III	IV	V	VI	VII	VIII	
Courses Semester wise	Statistics And Integral Transforms 15EMAB201 (4-0-0)	Numerical methods and partial differential equations 15EMAB206	Machine Learning & ROS 18EARC301 (3-0-0)	Hydraulics & Pneumatics 18EARC308 (4-0-0)	Industrial Data Networks 16EARC401 (4-0-0)	Professional Elective -6 XXEAREXXX (3-0-0)	Internship-Training 17EARI493 (0-0-6)
	CALCULUS AND INTEGRAL TRANSFORMS (4-0-0)	Vector calculus and differential equations 15EMAB241 (4-0-0)					
	Analog & Digital Electronic circuits 18EARC201 (4-0-0)	Machine Design 18EARC206 (3-0-0)	Programming Industrial Automation Systems 18EARC302 (4-0-0)	Professional Elective -1 XXEAREXXX (3-0-0)	Professional Elective -3 XXEAREXXX (3-0-0)	Open Elective (3-0-0)	
	Kinematics Of Machinery 19EARC202 (4-0-0)	Control Systems 19EARC207 (4-0-0)	Real time Embedded Systems 18EARC304 (4-0-0)	Professional Elective -2 XXEAREXXX (3-0-0)	Professional Elective -4 XXEAREXXX (3-0-0)	Capstone Project 19EARW402 Industry Internship –Project 17EARW494 (0-0-11)	
	Data Structure Algorithm Design and Analysis 18EARC203 (4-1-0)	Microcontrollers Programming & Interfacing 18EARC208 (4-0-0)	Mechatronics System Design 18EARC304 (4-0-0)	Hydraulics And Pneumatics Lab 16EARP302 (0-0-1)	Professional Elective -5 XXEAREXXX (3-0-0)		
	Mechanics Of Materials 18EARC204 (3-0-0)	Object Oriented Programming & DBMS 19EARC209 (4-0-0)	Measurement Systems 18EARC305 (3-0-0)	Mechatronics & Measurements Lab 18EARP304 (0-0-1)	Senior Design Project 19EARW401 (0-0-6)		
	Manufacturing Technology 18EARC205 (3-0-0)	Robot Analysis & Design 18EARC210 (4-0-0)	Machine Learning & ROS Lab 18EARP301 (0-0-1)	Real Time Embedded Systems Lab 16EARP307 (0-0-1)	CIPE 15EHSN401 (0-0-0)		
	Analog & Digital electronics lab 18EARP201 (0-0-1)	Manufacturing & Metrology lab 16EARP205 (0-0-1)	Programming Industrial Automation Systems Lab 18EARP302 (0-0-1)	PA & LR 16EHSC301 (3-0-0)			
	Kinematics Of Machinery lab 18EARP202 (0-0-1)	Microcontrollers Programming & Interfacing Lab 18EARP208 (0-0-1)	Industrial Robotics Lab 18EARP303 (0-0-1)	Minor Project 17EARW302 (0-0-6)			
	Machine Drawing Lab 18EARP203 (0-0-1)	Object Oriented Programming & DBMS Lab 19EARP209 (0-0-1)	Mini Project 17EARW301 (0-0-3)				
Credits	26	26	24	22	19	17	

Program Head

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Power electronics, motors and drives 16EARE301	Advanced Microcontroller 17EARE403	
Digital System Design & FPGA Programming 17EARE304	Computer Vision & Digital Image Processing 15EARE302	
	Smart Manufacturing 17EARE404	

FORM
ISO 9001: 2008 – BVBCET
Department of Automation & Robotics

Document #: FMCD2003

Rev: 1.0

Page 1 of 1

Title: Curriculum Structure-Overall
Program: B.E

Total Program Credit:178(134+44)

Year: 2019-23

Courses Semester wise

III	IV	V	VI	VII	VIII	
Statistics And Integral Transforms 15EMAB201 (4-0-0) CALCULUS AND INTEGRAL TRANSFORMS (4-0-0)	Numerical methods and partial differential equations 15EMAB206 Vector calculus and differential equations 15EMAB241 (4-0-0)	Machine Learning & ROS 18EARC301 (3-0-0)	Hydraulics & Pneumatics 18EARC308 (4-0-0)	Industrial Data Networks 16EARC401 (4-0-0)	Professional Elective -6 XXEAREXXX (3-0-0)	Internship-Training 17EARI493 (0-0-6)
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Kinematics Of Machinery 19EARC202 (4-0-0)	Control Systems 19EARC207 (4-0-0)	Real time Embedded Systems 18EARC304 (4-0-0)	Professional Elective -2 XXEAREXXX (3-0-0)	Professional Elective -4 XXEAREXXX (3-0-0)	Capstone Project 19EARW402 Industry Internship –Project 17EARW494 (0-0-11)	
Data Structure Algorithm Design and Analysis 18EARC203 (4-1-0)	Microcontrollers Programming & Interfacing 18EARC208 (4-0-0)	Mechatronics System Design 18EARC304 (4-0-0)	Hydraulics And Pneumatics Lab 16EARP302 (0-0-1)	Professional Elective -5 XXEAREXXX (3-0-0)		
Mechanics Of Materials 18EARC204 (3-0-0)	Object Oriented Programming & DBMS 19EARC209 (4-0-0)	Measurement Systems 18EARC305 (3-0-0)	Mechatronics & Measurements Lab 18EARP304 (0-0-1)	Senior Design Project 19EARW401 (0-0-6)		
Manufacturing Technology 18EARC205 (3-0-0)	Robot Analysis & Design 18EARC210 (4-0-0)	Machine Learning & ROS Lab 18EARP301 (0-0-1)	Real Time Embedded Systems Lab 16EARP307 (0-0-1)	CIPE 15EHSN401 (0-0-0)		
Analog & Digital electronics lab 18EARP201 (0-0-1)	Manufacturing & Metrology lab 16EARP205 (0-0-1)	Programming Industrial Automation Systems Lab 18EARP302 (0-0-1)	PA & LR 16EHSC301 (3-0-0)			
Kinematics Of Machinery lab 18EARP202 (0-0-1)	Microcontrollers Programming & Interfacing Lab 18EARP208 (0-0-1)	Industrial Robotics Lab 18EARP303 (0-0-1)	Minor Project 17EARW302 (0-0-6)			
Machine Drawing Lab 18EARP203 (0-0-1)	Object Oriented Programming & DBMS Lab 19EARP209 (0-0-1)	Mini Project 17EARW301 (0-0-3)				
Credits 26	26	24	22	19	17	

Program Head

Semester: III & IV (2020-24 batch)   Date of Review: 05-06-2021

Inputs for review: PEO- Mapping of CLO with PO – Academic Guidelines-Previous review outcomes

Sr.No	Features reviewed	Status of Review		
		Accepted	Accepted with minor changes	Not accepted
01	**Overall schemes of the program**			
a	Credits	✓		
b	Flow	✓		
c	Contact hours	✓		
02	**Semester wise curriculum structure**			
a	Credits	✓		
b	Flow	✓		
c	Contact hours	✓		
d	Evaluation scheme	✓		
03	**Course contents**			
a	Subject contents	✓		
b	Unitization	✓		
c	Reference books	✓		
d	Evaluation method	✓		

Changes Suggested (Serial number wise)
Reviewed syllabus of all courses of III & IV semester and approved with no changes suggested by BOS member

Reviewed by (Use initials)	DR. Dhanesh Manik	Mr.Abhijit Lele	Mr. Jitendra Kataria	Supreet Kamatagi	A.C.Giriyapur	Dr.Jyoti Bali	Dr Vinod Meti	Nagaraj MB	Dr Sachin Karadgi
Signature	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present

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Semester: V & VI (2019-23 batch)   Date of Review: 05-06-2021

Inputs for review: PEO- Mapping of CLO with PO – Academic Guidelines-Previous review outcomes

Sr.No	Features reviewed	Status of Review		
		Accepted	Accepted with minor changes	Not accepted
01	Overall schemes of the program			
a	Credits	✓		
b	Flow	✓		
c	Contact hours	✓		
02	Semester wise curriculum structure			
a	Credits	✓		
b	Flow	✓		
c	Contact hours	✓		
d	Evaluation scheme			
03	Course contents			
a	Subject contents	✓		
b	Unitization	✓		
c	Reference books	✓		
d	Evaluation method	✓		

Changes Suggested (Serial number wise)
Reviewed Syllabus of all courses of V & VI semester and approved with no changes. suggested by BOS members.

Reviewed by (Use initials)	DR. Dhanesh Manik	Mr.Abhijit Lele	Mr. Jitendra Kataria	Supreet Kamatagi	A.C.Giriyapur	Dr.Jyoti Bali	Dr Vinod Meti	Nagaraj MB	Dr Sachin Karadgi
Signature	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present

Semester: VII & VIII (2018-22 batch)   Date of Review: 05-06-2021

Inputs for review: PEO- Mapping of CLO with PO – Academic Guidelines-Previous review outcomes

Sr.No	Features reviewed	Status of Review		
		Accepted	Accepted with minor changes	Not accepted
01	**Overall schemes of the program**			
a	Credits	✓		
b	Flow	✓		
c	Contact hours	✓		
02	**Semester wise curriculum structure**			
a	Credits	✓		
b	Flow	✓		
c	Contact hours	✓		
d	Evaluation scheme	✓		
03	**Course contents**			
a	Subject contents	✓		
b	Unitization	✓		
c	Reference books	✓		
d	Evaluation method	✓		

Changes Suggested (Serial number wise)
Reviewed syllabus of all courses of VII & VIII semester BOS members approved with no changes suggested.

Reviewed by (Use initials)	DR. Dhanesh Manik	Mr.Abhijit Lele	Mr. Jitendra Kataria	Supreet Kamatagi	A.C.Giriyapur	Dr.Jyoti Bali	Dr Vinod Meti	Nagaraj MB	Dr Sachin Karadgi
Signature	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present	Virtually present

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5ᵗʰ June 2021

Agenda

Sl.No	Points to discuss	Documents
1.	Introduction & Review of Actions initiated from previous BOS meeting	Curriculum structure & Syllabus
2.	Review of modifications recommended by the Academic Council after BOS 2020.	
3.	Review and approval of Syllabi for VII & VIII Semester of the batch 2018-22, KLE Tech.	
4.	Review and approval of Syllabi for V & VI Semester of the batch 2019-23, KLE Tech.	
5.	Review and approval of Syllabi for III & IV Semester of the batch 2020-24, KLE Tech.	
6.	Any other points	

Minutes Prepared by

Dr Jyoti Bali

Prof A. C. Giriyapur

Chairperson, HOD, A&R

MINUTES OF THE MEETING, 5TH JUNE 2021

Sl.No	Points raised	Changes made	Raised By
1.0	HOD welcomed the members of the sixth meeting of the Board of Studies-2021 (BOS-2021) of KLE Technological University. Reviewed the minutes of BOS 2020 and briefed about the changes proposed and practised. HOD introduced the way online teaching was carried out from the last academic year. HOD briefed about the arrangements for recording videos for asynchronous sessions and the online sessions, i.e. synchronous sessions. HOD discussed final year project/internship/industry internship activities.	Review done and action proposed	Dr. Dhanesh Manik, IIT Bombay. Dr. Abhijit Lele, Robert Bosch India. Mr. Jitendra Kataria, Beckhoff, Automation India Ltd.Pune Mr. Supreet Kamatagi, Griffyn Robotech Pvt. Ltd.
2.0	Review of recommendations by the Academic Council or the Principal after BOS 2021.		
3.0 Curriculum & Syllabus for batch 2018-22	Review of Syllabi for VII & VIII Semester of the batch 2018-22, KLETU No changes proposed in the syllabus, BOS members approved the curriculum structure and the syllabus in the present form.	Review done and Approved	
3.0 Curriculum & Syllabus for batch 2019-23	Review of Syllabi for V & VI Semester of the batch 2019-23, KLETU. V Sem : No changes were proposed in the syllabus. BOS members approved the curriculum structure and the syllabus in the present form. VI Sem : New Elective introduced titled Robot Dynamics & Control, 17EARE302 for which the course objectives, syllabus content, In semester and end semester assessment was carried out. The elective course was approved.	Review done and Approved.	
4.0 Curriculum & Syllabus for batch 2020-24	Review and approval of Syllabi for III & IV Semester of the batch 2020-24, KLETU. No changes were proposed in the syllabus. BOS members approved the curriculum structure and the syllabus in the present form.	Review done and Approved.	Dr. Dhanesh Manik, IIT Bombay. Dr. Abhijit Lele, Robert Bosch India.
5.0 Experience sharing by Faculty	• Faculty members shared their experience in recording the asynchronous videos for the allotted subjects in studios and the online interaction with students during synchronous sessions. • HOD played some of the recorded videos before the BOS members for their comments. • BOS members appreciated the online training of students for the practical exercises on simulation in the laboratories, namely, the use of NPTEL resources in the PIAS lab, Control Systems tutorial and other Programming labs. • BOS members welcomed the steps initiated and activities implemented to foster remote learning by students during the Covid pandemic. • Mr Jitendra Kataria, MD Beckhoff Automation India, advised	Review done and Appreciated.	Mr. Jitendra Kataria, Beckhoff, Automation India Ltd.Pune Mr. Supreet Kamatagi, Griffyn Robotech Pvt. Ltd.

	practising the TwinCAT software-based automation exercises in PIAS Lab • Data Structures Algorithm Design and Analysis: The pedagogy practices and the hand on exercises explained by Mrs Ashwini G K were reviewed and appreciated by BOS members. • Measurement Systems Theory and Lab: Practices followed in the theory and lab sessions explained by Dr Vinod M were reviewed and appreciated by BOS members.		
6.0 Achievements by students	Achievements by Final year students of 2018-22 Batch, A&R as a part of their Project work Humanoid Robot for Banking Sector "MAYA", the Humanoid Robot, is a sponsored project specifically developed to address all "Grahak Mitra" (customer care) needs in a banking system such as guidance for account opening, transactions and also guiding the customers towards the respective counters. This Robot can provide solutions for better customer service, besides marketing, process automation and many others. It houses the additional features, namely, Chatbot, face recognition, automatic docking after discharge and AI-based intelligent decision making in the form of multi-lingual conversations like a human. The cost incurred for the project is five lakhs. Maya robot weighs 15kg with a battery backup of 8-10 hours. Smart India Hackathon (SIH)2020 A team of 6 members from Automation and Robotics and Mechanical engineering students were part of the project, which emerged as Joint Winners of the Challenge SIH 2020. The team has selected the problem statement as Fire Safe Infrastructure for Construction Industry given by the Department of Scientific and Industrial Research. The solution proposed by the team was a robot that was designed to operate remotely. The primary mechanism is a spring-based launcher mechanism that launches fire extinguisher balls. These balls are excellent at clearing out rooms in short amounts of time and can significantly assist rescue operations where speed and efficiency are of paramount importance. The secondary mechanism is a traditional spray based fire extinguisher, which is actuated by a cam mechanism.	Appreciated	Dr. Dhanesh Manik, IIT Bombay. Dr. Abhijit Lele, Robert Bosch India. Mr. Jitendra Kataria, Beckhoff, Automation India Ltd.Pune Mr. Supreet Kamatagi, Griffyn Robotech Pvt. Ltd.
Research @A&R dept	The research group presentation was done by ERG members, namely, Dr Sachin Karadgi, Dr Vinod Meti and Dr Jyoti Bali, briefing about the research activities taken up at the department for grooming research culture in the department. The research focus areas and the themes taken up by faculty teams under the Research domain: Industry 4.0 was presented. The research plan and the path set by different faculty teams were appreciated. Dr Abhijit Lele appreciated the initiatives taken up by faculty members with regards to research activities. He explained the need and the scope of working with Traceability, Accountability factors in digital twin-based applications, namely, Tracking parcels in the Warehouse, Use of Drones for warehouse management, Constant	Review done and Appreciated.	Dr. Dhanesh Manik, IIT Bombay. Dr. Abhijit Lele, Robert Bosch India. Mr. Jitendra Kataria, Beckhoff, Automation India Ltd.Pune Mr. Supreet Kamatagi,

	Temperature tracking in the Supply chain to avoid the spoilage and wastage of vaccines. The external BOS members appreciated the plan of research methodology models introduced for young faculty members. They advised faculty members to apply for research funding from various Govt. schemes.		Griffyn Robotech Pvt. Ltd.
5.0 Final Comments	Approved the initiatives and activities taken up at the department to build the proficiency of faculty members at the academic and research level. VI, BOS Meeting ended with Vote of Thanks proposed by HOD, Dept. A&R, KLETU		

The Curriculum Contents for III and IV Semester of batch 2020-24, IV & V Semester of the batch 2019-23 and VII & VIII Semester of the batch 2018-22 are approved in VI BOS held as Virtual Google Meet 5th June 2021.
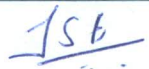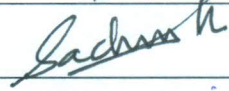
Approved by:

Sl. No	Members, Board of Studies	Signature
1	Prof. A. C. Giriyapur, Chairperson, HOD, A & R Dept. KLETU	Present
2	Dr. Dhanesh Manik, IIT Bombay.	Present
3	Dr. Abhijit Lele, Robert Bosch India.	Present
4	Mr. Jitendra Kataria, Beckhoff Automation India . Ltd. Pune	Present
5	Mr. Supreet Kamatagi, Griffyn Robotech Pvt. Ltd.	Present
6	Dr Jyoti Bali, A & R Dept. KLETU	Present
7	Dr Vinod Kumar V Meti, A & R Dept. KLETU	Present
8	Dr Sachin Karadgi, A & R Dept. KLETU	Present
9	Mr Nagaraj M B, A & R Dept. KLETU	Present

Resolutions made during the 6th Board of Studies Meeting held on 5th June 2021 as

- It was resolved to approve Syllabi for the III and IV Semester of batch 2020-24, KLETU.

- It was resolved to approve Syllabi for the V & VI Semester of the batch 2019-23, KLETU.

- It was resolved to approve Syllabi for the VII & VIII Semester of the batch 2018-22, KLETU.

- Curriculum Content for III and IV Semester of the batch 2020-24, V & VI Semester of the batch 2019-23, VII & VIII Semester of the batch 2018-22, in 6th BOS held in Virtual Meeting held through Google Meet 5th June 2021 from 10 am to 12 pm.

- Approved contents of all the courses and laboratories discussed in the BOS meeting are attached to this document.

Approved by:

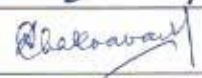| Sl No	Members, BOS	Signature
1	Prof. A. C. Giriyapur, Chairperson, HOD, A & R Dept.	
2	Dr. Dhanesh Manik, IIT Bombay.	Present
3	Dr. Abhijit Lele, Robert Bosch India.	Present
4	Mr. Jitendra Kataria, Beckhoff Automation India . Ltd. Pune	Present
5	Mr. Supreet Kamatagi, Griffyn Robotech Pvt. Ltd.	Present
6	Dr Jyoti Bali, A & R Dept.	
7	Dr Vinod Kumar V Meti, A & R Dept.	
8	Dr Sachin Karadgi, A & R Dept. KLETU	
9	Mr Nagaraj M B, A & R Dept. KLETU	

Minutes of Board of Studies Meeting
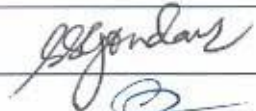
BOS meeting with external BOS members held on 04/06/21 on MS Teams Platform Online

Agenda

1. Presentation of revision to external members and seek suggestions
2. Review and revision of curriculum of semester 1 and 2 as well as 7 and 8
3. Revision of curriculum of building construction, services and skill development in detail
4. Curriculum of semester VIII to be shifted to semester IX
5. Horizontal and vertical integration of building construction, services and skill development

Minutes of the meeting

1. In building construction it was suggested that too much emphasis on technology was there and it can be eased out a little.
2. In services integration of sustainable practices and application was suggested. More emphasis on application of solar passive design principles, ratings and ECBC requirements and integration to design.
3. In skill development reading, writing and publishing skills were suggested. A skill assessment programmer aiming at honing of individual skills, interpersonal skills and integration of skills to design was suggested.
4. In structure it was suggested that concepts should be one semester ahead of construction and stress should be on behavioral studies along with numeric abilities. Also application of concepts should start from lower semester rather than seventh semester
5. In design rather than looking at scales the right questions should be asked and emphasis on ecological studies should be undertaken.

S. No.	Name	Signature
1	Dr. Vinaya Hiremath , Head SOA	
2	Dr. Mansi Bal Bhargava (External BOS Member)	
3	Ar. Anup Naik (External BOS Member)	
4.	Ar. Bijoy Ramchandran (External BOS Member)	
5	Ar. Virendranath Satrasala (Alumnus)	
6	Prof.Gururaj Joshi	
7	Prof.Gitanjali Rao	
8	Prof.Sharan Goudar	
9	Prof.Somashekhar Dhotrad	
10	Prof.Dipanwita Chakravarty	
11	Prof.Dandin	

12	Prof.Rohini Karmari	
13	Prof.Kalpeshkumar Patel	
14	Prof.Sandeep Harapanahalli	
15	Prof.Harishkumar B P	
16	Prof.Manjunath Karkal	
17	Prof.Anupkumar Gupta	
18	Abhijita Gaonkar (Student representative)	
19	Shubham Kinnerkar (Student representative)	

Dr. Vinaya Hiremath
Head, School of Architecture

BOS (Board of Studies) Minutes of Meeting – 2021-22 Academic Year

Agenda -
To review and approve the schemes and syllabus of First year (2021-22) Batch and Second year (2020-21) Batch

Members Attended

1. Dr V.B.Patil, Head, School of Civil Engineering, KLE Tech.
2. Dr. G.R. Dodagoudar, Professor, IIT Madras.
3. Dr. Raviraj Mulangi, Assistant Professor, NITK Surathkal.
4. Dr. Gangadhar Mahesh, Associate professor, NITK Surathkal.
5. Dr B.Venkatesh, Sebior scientist, NIH Belgaum.
6. Prof. M.B.Patil, HOD Government Engineering College, K.R.Pet Bangalore.
7. Dr.S.A. Annigeri, Professor, KLE Tech.
8. Dr.L.J. Pol, Professor, KLE Tech.
9. Dr. S.S. Dyavanal, Professor, KLE Tech.
10. Dr. M.V.Chitawadagi, Professor, KLE Tech.
11. Dr. A.M. Hunshyal, Professor, KLE Tech.
12. Dr. M.R. Patil, Professor, KLE Tech.
13. Prof. G.C. Bellad, Associate Professor, KLE Tech.
14. Prof. V.P. Patil, Associate Professor, KLE Tech.
15. Dr. S. S. Quadri, Professor, KLE Tech.
16. Prof. Gurunath Kampli, Assistant Professor, KLE Tech.
17. Prof. Prema Malali, Assistant Professor, KLE Tech.
18. Prof. Khalida Muntasher, Assistant Professor, KLE Tech.
19. Prof. Chaitanya Akkannavar, Assistant Professor, KLE Tech.
20. Prof. Shivaraj Halyal, Assistant Professor, KLE Tech.
21. Prof. Shashwath Nanjannavar, Assistant Professor, KLE Tech.
22. Prof. Basangouda Patil, Assistant Professor, KLE Tech.
23. Prof. Roopa Kuri, Assistant Professor, KLE Tech.
24. Prof. Vinayak Naikar, Assistant Professor, KLE Tech.
25. Prof. Bapugouda Biradar, Assistant Professor, KLE Tech.
26. Dr. Shashibhushan Biliangadi, Assistant Professor, KLE Tech.

Professor & Head
School of Civil Engineering
KLE Technological University

Minutes of Meeting (MoM) -

1. For 1st and 2nd semester Engineering Mechanics, it was suggested to include standard international textbooks.

2. For 4th semester, Construction Project Management course, chapter 5 Construction Safety Management must be shifted to Advanced Project Management in 5th semester and chapter 6 Construction Quality Management must be removed. Also, the Construction Equipment Chapter must be moved to Construction Methods course in 7th semester. 2 new chapters for Unit 3 is introduced, Chapter 6 Sustainability in Construction Industry and Chapter 7 BIM and Technology trends in Construction.

3. For Hydrology and Irrigation course in 4th semester, in chapter 1, Add topics on ground water, Darcy's law, types of aquifers, permeability, porosity and different soil zones. Include topic on micro irrigation in Unit-II and Rename failure analysis to Stability analysis of dam.

4. For the Design of RCC structures course of the 5th semester, the Design of Isolated footing subjected to both axial load and eccentric loads are included in Unit-3. Design of slabs and beams chapters are combined into a single chapter as the design of flexural members.

5. For Highway Engineering Lab in 5th semester, it was suggested to include combined flakiness and elongation index under aggregate shape test.

6. For Traffic engineering it was suggested to introduce traffic system management.

7. For Construction Simulation Practice Lab, it was suggested to rename the lab as Construction Site Management Workshop.

8. For Pavement Engineering elective course in 6th semester, it was suggested to split the chapter Capacity analysis (chapter 4) and propose Traffic Management techniques as a chapter for 4 hours.

9. For Estimation and Costing course in 6th semester, it was suggested to include E-procurement and KTTP ACT 2020 and Standard bid document as per state government in Contract chapter.

10. For Hydrology and Hydraulic Structures elective course in 6th semester, the following changes were suggested –
    a. Removal of unit hydrograph and its analysis, S-curve from Chapter 1
    b. Topics on estimation of water yield, flow duration curve, water resource management, flood estimation, flood management, advance irrigation methods and stream gauging must be included
    c. Chapter on computation of data and management
    d. Chapter on Estimation of water, management and scheduling of resource management
    e. Chapter on Advance irrigation methods
    f. Design of irrigation drainages

11. For Solid Waste Management in 7th semester, Chapter 1 is updated to reflect the latest trends in solid waste management as introduction.

Professor & Head

12. For the Advanced RCC course of the 7th semester, the Design of special type of slabs is introduced in chapter - 2. Design of combined footing and raft footing is combined into a single chapter.

13. For Design of Steel Structures in 7th semester, the chapter Design of Truss is replaced by the chapter Design of Gantry Girders.

14. For Construction Economics and Management course, it was suggested to make this course a core course. Furthermore, introduce the chapters of dispute resolution management and arbitration. This course is moved to 5th semester and converted to a core course.

15. Advanced project Management course is moved from 5th semester core course to 7th semester elective. The following new chapters are introduced in this course

    Chapter 2 – Cost Controls

    Chapter 3 – Construction Site Layout

    Chapter 4 - Construction dispute and their Settlement

    Chapter 5 – Risk and Insurance in Construction

    Chapter 7 – Construction Labour and Labour Laws

M.Tech. (Structural Engineering)

1. M.Tech. (Structural Engineering) 2021-22 admission batch: No changes suggested and after discussion scheme and syllabus were approved.

Professor & Head
School of Civil Engineering
KLE Technological University
Hubballi.

Minutes

7thBoard of Studies Meeting

of

School of Computer Science and Engineering

Hubballi, Karnataka

29thMay 2021

The following are the minutes of theBoard of Studies meeting of SoCSE, KLE Technological University, Hubballi which was held on 29th May 2021 at 09:30Amonline in MS Teams.

The following members were present.

Sr	Name	Designation	Position
1.	Dr. Meena S. M.	Professor & Head of the School/ Department	Chairman
2.	Dr. V. P. Baligar	Professor, Dean's nominee	Member
3.	Dr. S. R. Chickerur	Professor, Dean's nominee	Member
4.	Dr. Narayan D. G.	Professor, Dean's nominee	Member
5.	Mr. K.M.M. Rajashekharaiah	Associate Professor, Dean's nominee	Member
6.	Ms. Priyadarshini Kalwad	Assistant Professor,nominated by the concerned Head of the Department/ School	Member
7.	Prof. Prakash Hegde	Assistant Professor,nominated by the concerned Head of the Department/ School	Member
8.	Dr. Parag Chaudhuri	Subject expert from outside the collegenominated by the Vice-Chancellor	Member
9.	Dr. Pradeep V. Desai	Representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Member
10.	Mr. Raju Dixit	Representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Member
11.	Mr. Ram Jakati	Representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Member
12.	Mr. Phalachandra H L.	Subject expert from outside the collegenominated by the Vice-Chancellor	Member
13.	Dr. G. H. Joshi	Executive Director, KSHEC	Member Invite
14.	Dr. Shankar G.	Professor nominated by the concerned Head of the Department/ School/ Center	Member Secretary
15.	Ms. Apeksha Kulkarni	Post graduate meritorious alumnus nominated by Vice Chancellor.	Member
16.	Ms. Soumya Jahagirdar	Student Member representing each of the program offered by the Department/ School/ Center	Member

Agenda

Sl No	Particulars	Page No.
7.1	To welcome the BoS Members and present department achievements & initiatives	
7.2	To read and confirm the minutes of6thBoS meeting held on 06th June 2020	
7.3	To confirm the action taken report on the minutes of the previous meeting held on 23rd June 2020	
7.4	To consider the Schemes and Syllabi of the undergraduate program B.E in Computer Science and approve the same. a. Academic Initiatives b. Ratification of scheme for 2018-22, 2019-23, 2020-24 batch. c. Approval of syllabi VII & VIII Semester of 2018 - 22 batch. d. Approval of syllabi V & VI Semester of 2019 - 23 batch. e. Approval of syllabi III & IV Semester of 2020 - 24 batch. f. Approval of programming syllabus I & II Semester of 2021 - 25 batch.	

	g. Approval of scheme III to VIII Semester of 2021 - 25 batch.	
	h. Approval of scheme and syllabus of minor programme in CSE for 2022-24 batch	
7.5	To consider the Schemes and Syllabi of the postgraduate program in CSE. a. Approval of the scheme & syllabi of 2021 - 23 batch. b. Approval of MS (Engg) by Research scheme and syllabi of 2020 – 23 batch.	
7.6	Any other matter for discussion with the permission of the chair	

BoS7.1	**To welcome the BoS Members and present department achievements & initiatives and discussed about the inputs from all stake holders.** *(Annexure 7.1)*

Resolution 7.1: The BoS members appreciated the initiatives of SoCSE and lauded its achievements.

BoS7.2	**To read and confirm the minutes of 6ᵗʰBoS meeting held on** 06ᵗʰJune 2020
	The following are the minutes of the Board of Studies meeting of SoCSE, KLE Technological University, Hubballi which was held on 06ᵗʰJune 2020 Online. **The following members were present.**

Sr	Name	Designation	Position
1.	Dr. Meena S. M.	Professor & Head of the School	Chairman
2.	Dr. G. H. Joshi	Professor , Dean's nominee	Member
3.	Dr. V. P. Baligar	Professor, Dean's nominee	Member
4.	Dr. S.R. Chickerur	Professor, Dean's nominee	Member
5.	Dr. Narayan D. G.	Professor, Dean's nominee	Member
6.	Mr. K.M.M. Rajashekharaiah	Associate Professor,Dean's nominee	Member
7.	Ms. Priyadarshini Kalwad	Assistant Professor nominated by the concerned Head of the Department/ School	Member
8.	Mr. Prakash Hegde	Assistant Professor nominated by the concerned Head of the Department/ School	Member
9.	Dr. Kavi Mahesh	Subject expert from outside the collegenominated by the Vice-Chancellor	Member
10.	Dr. Pradeep V. Desai	Representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Member
11.	Mr. Raju Dixit	Representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Member
12.	Mr. Ram Jakati	Representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Member
13.	Mr.Phalachandra HL	Subject expert from outside the collegenominated by the Vice-Chancellor	Member
14.	Prof. Shankar G.	Professor nominated by the concerned Head of the Department/ School/ Center	Member Secretary
15.	Ms. Unnati Koppikar	Post graduate meritorious alumnus nominated by Vice Chancellor.	Member

16.	Mr. KiranAkadas	Student Member representing each of the program offered by the School/ Center	Member	

Item No.	Description
BoS 6.1	**To welcome the BoS Members and present department achievements & initiatives and discussed about the inputs from all stake holders. *(Annexure 6.1)*** Resolution 6.1: The BoS members appreciated the initiatives of SoCSE and lauded its achievements.
BoS 6.2	**To read and confirm the minutes of 5thBoS meeting held on** 13April 2019 **Resolution 6.2: Resolved to confirm the minutes of its 4thBoS meeting held on 7th April 2018**
BoS 6.3	**To confirm the action taken report on the minutes of the previous meeting held on** 17th April 2019 **Resolution: 6.3 Resolved to confirm the action taken report on the minutes of its 5thBoS meeting held on** 17thApril 2019. **The BoS members appreciated the new initiatives taken by SoCSE.**

BoS 6.4	To consider the Schemes and Syllabi of the undergraduate program B.E in Computer Science and approve the same.
	     a. Approval of syllabi VII & VIII Semester of 2017 - 21 batch.
	     b. Ratification of scheme for 2017 - 21, 2018 - 22 batch.
	     c. Approval of syllabi V & VI Semester of 2018 - 22 batch.
	     d. Approval of syllabi III & IV Semester of 2019 - 23 batch.
	     e. Approval of syllabus I/II Semester of 2020 - 24 batch.
	     f. Approval of scheme III to VIII Semester of 2020 - 24 batch.
	     g. Approval of scheme and syllabus of Minor Programme in CSE for 2021 -23 batch.
	
	 Discussion: Based on the discussions following action, items as agreed upon by everyone were finalized and the same were circulated to all the members on 06th June 2020. Persons responsible for these action items have already initiated the actions, which will be shared in the next BoS meeting.
	 The details of discussion are in ***Annexure 6.4***.
	
	 Action Item No.1: Enhancement of distributed storage from cloud computing perspective.
	    1) Distributed and Cloud Computing (20ECSC305)
	
	 Action Item No.2: To introduce electives related to automated development systems for enriching student skills.
	 1) DevOps
	
	 ***Action Item No.3: To focus on software design and development in*projects by leveraging students to use libraries, creating architecture, detailed design and qualitative evaluation.**

	1) Senior Design Project (20ECSW401)
	
	Action Item No.4: To connect probability and statistics concepts with real world applications.
	1) Applied Statistics with R (20EMAB209)
	
	Action Item No.5: To focus on performance enhancementfactors in parallel processing.
	1) Computer Organization and Architecture (20ECSC201)
	
	Action Item No.6:Detailed study of one microcontroller isrecommended.
	1) Microcontroller Programming and Interfacing (20ECSC206)
	
	Resolution 6.4: Resolved to approve the Schemes and Syllabi of the undergraduate program B.E in Computer Science and approve the same.
	    a. Approval of syllabi VII & VIII Semester of 2017 - 21 batch.
	    b. Ratification of scheme for 2017 - 21, 2018 - 22 batch.
	    c. Approval of syllabi V & VI Semester of 2018 - 22 batch.
	    d. Approval of syllabi III & IV Semester of 2019 - 23 batch.
	    e. Approval of syllabus I/II Semester of 2020 - 24 batch.
	    f. Approval of scheme III to VIII Semester of 2020 - 24 batch.
	    g. Approval of scheme and syllabus of Minor Programme in CSE for 2021 -23 batch.

BoS 6.5	To consider the Schemes and Syllabi of the postgraduate program.
	    a. Approval of the scheme & syllabi of 2020 - 22 batch.
	
	Discussion: Based on the discussions following action, items as agreed upon by everyone were finalized and the same were circulated to all the members on 17th April 2019. Persons responsible for these action items have already initiated the actions, which will be shared the next BoS meeting.
	Action Item No.1: New Courses added
	1. Data Mining and Machine Learning (20ECSC702)
	2. Big Data and Analytics (20ECSC711)
	3. Artificial Intelligence (20ECSC712)
	4. Image and Vision Computing (20ECSC713)
	5. Distributing Trust and Block Chains (20ECSC714)
	6. Deep Learning (20ECSE715)
	7. Natural Language Processing (20ECSE716)
	
	Resolution 5.5: Resolved to approve the Schemes and Syllabi of the postgraduate program.
	    a) Approval of (scheme & syllabi) of 2020 - 22 batch.

BoS6.6	Any other matter for discussion with the permission of the chair
	Nil

Resolution 7.2: Resolved to confirm the minutes of its 6thBoS meeting held on 06th June 2020.

BoS7.3	To confirm the action taken report on the minutes of the previous meeting held on 23rd June 2020.	
Item No	**Description**	**Action Taken**
BoS 6.1	**To welcome the BoS Members and present department achievements & initiatives and discussed about the inputs from all stake holders.** *(Annexure 6.1)* **Resolution 6.1: The BoS members appreciated the initiatives of SoCSE and lauded its achievements.**	Noted

BoS 6.2	**To read and confirm the minutes of 5thBoS meeting held on** 13thApril 2019 **Resolution 6.2: Resolved to confirm the minutes of its 4thBoS meeting held on 7th April 2018**	Noted
BoS 6.3	**To confirm the action taken report on the minutes of the previous meeting held on** 17thApril 2019 **Resolution: 6.3 Resolved to confirm the action taken report on the minutes of its 5thBoS meeting held on** 17thApril 2019. **The BoS members appreciated the new initiatives taken by SoCSE.**	Noted
BoS6.4	To consider the Schemes and Syllabi of the undergraduate program B.E in Computer Science and approve the same. a. Approval of syllabi VII & VIII Semester of 2017 - 21 batch. b. Ratification of scheme for 2017 - 21, 2018 - 22 batch. c. Approval of syllabi V & VI Semester of 2018 - 22 batch. d. Approval of syllabi III & IV Semester of 2019 - 23 batch. e. Approval of syllabus I/II Semester of 2020 - 24 batch. f. Approval of scheme III to VIII Semester of 2020 - 24 batch. g. Approval of scheme and syllabus of Minor Programme in CSE for 2021 -23 batch. **Discussion**: Based on the discussions following action, items as agreed upon by everyone were finalized and the same were circulated to all the members on 06th June 2020. Persons responsible for these action items have already initiated the actions, which will be shared in the next BoS meeting. The details of discussion are in **Annexure 6.4**. ***Action Item No.1: Enhancement of distributed storage from cloud computing perspective.*** 1) Distributed and Cloud Computing (20ECSC305) ***Action Item No.2: To introduce electives related to automated development systems for enriching student skills.*** 1) DevOps ***Action Item No.3: To focus on software design and development in*** projects by leveraging students to use libraries, creating architecture, detailed design and **qualitative evaluation.** 1) Senior Design Project (20ECSW401)	**The BoS members noted the progress of the School and recommended certain action items and timeline.** ***Action Item No.1: Enhancement of distributed storage from cloud computing perspective.*** Distributed and Cloud Computing (20ECSC305) ***ATR:*** Distributed storage as a service is introduced in the syllabus and related topics are covered in the lab. ***Action Item No.2: To introduce electives related to automated development systems for enriching student skills.*** 1) DevOps ***ATR:*** It is resolved to introduce a new elective course DevOps with content related to automated software development for upskilling the students. The course will be floated in next AY. ***Action Item No.3: To focus on software design and development in*** projects by leveraging students to use libraries, creating architecture, detailed design and qualitative evaluation. 1) Senior Design Project (20ECSW401) **ATR:** The objectives of the SDP are set as per the suggestions and the same will be practiced in the projects. ***Action Item No.4: To connect probability and statistics concepts with real world applications.*** 1) Applied Statistics with R (20EMAB209) **ATR:** The course is supported with R and the tutorial will now have applications via activities and real-world examples in the course.

	Action Item No.4: To connect probability and statistics concepts with real world applications.
	1) Applied Statistics with R (20EMAB209)
	
	Action Item No.5: To focus on performance enhancementfactors in parallel processing.
	1) Computer Organization and Architecture (20ECSC201)
	
	Action Item No.6:Detailed study of one microcontroller isrecommended.
	1) Microcontroller Programming and Interfacing (20ECSC206)
	
	Resolution 6.4: Resolved to approve the Schemes and Syllabi of the undergraduate program B.E in Computer Science and approve the same.
	    a. Approval of syllabi VII & VIII Semester of 2017 - 21 batch.
	    b. Ratification of scheme for 2017 - 21, 2018 - 22 batch.
	    c. Approval of syllabi V & VI Semester of 2018 - 22 batch.
	    d. Approval of syllabi III & IV Semester of 2019 - 23 batch.
	    e. Approval of syllabus I/II Semester of 2020 - 24 batch.
	    f. Approval of scheme III to VIII Semester of 2020 - 24 batch.
	    g. Approval of scheme and syllabus of Minor Programme in CSE for 2021 -23 batch.
		Action Item No.5: To focus on performance enhancementfactors in parallel processing.
		1) Computer Organization and Architecture (20ECSC201)
		
		==**ATR:**It is resolved to include performance enhancement concepts for providing exposure to parallel processing.==
		
		Action Item No.6:Detailed study of one microcontroller isrecommended.
		1) Microcontroller Programming and Interfacing (20ECSC206)
		
		==**ATR:**The ATMega32 RISC architecture is introduced in microcontroller course to enhance for employability.==

BoS 6.5	Schemes and Syllabi of the postgraduate program.
	    1. Approval of (scheme & syllabi) of 2020- 22 batch.
	
	Discussion: Based on the discussions following action, items as agreed upon by everyone were finalized and the same were circulated to all the members on 06th June 2020. Persons responsible for these action items have already initiated the actions, which will be shared the next BoS meeting.
	Action Item No.1: New Courses added
	    1. Data Mining and Machine Learning (20ECSC702)
	    2. Big Data and Analytics (20ECSC711)
	    3. Artificial Intelligence (20ECSC712)
	    4. Image and Vision Computing (20ECSC713)
	    5. Distributing Trust and Block Chains (20ECSC714)
	    6. Deep Learning (20ECSE715)
	    7. Natural Language Processing (20ECSE716)
		The BoS members noted the progress of the School and recommended certain action items and timeline.
		
		Action Item No.1: New Courses added
		    1. Data Mining and Machine Learning (20ECSC702)
		    2. Big Data and Analytics (20ECSC711)
		    3. Artificial Intelligence (20ECSC712)
		    4. Image and Vision Computing (20ECSC713)
		    5. Distributing Trust and Block Chains (20ECSC714)
		    6. Deep Learning (20ECSE715)
		    7. Natural Language Processing (20ECSE716)
		
		ATR: [PG Coordinator]
		Action Item No.1: To focus on Data Mining and Machine Learning to cover the latest areas of importance.
		    1. Data Mining and Machine Learning (20ECSC702)

	Resolution 5.5: Resolved to approve the Schemes and Syllabi of the postgraduate program.
	      1. Approval of (scheme & syllabi) of 2020 - 22 batch.
		ATR:Data Mining and Machine Learning is introduced to focus on latest areas of Computer Science and Engineering
		
		Action Item No.2: To impart and enhance the Analytic capabilities of the students.
		    2. Big Data and Analytics (20ECSC711)
		
		ATR:Big Data Analytics is introduced toimpart the Analytic capabilities of the students.
		
		Action Item No.3: To meet the Industry requirements in the area of Artificial Intelligence.
		    3. Artificial Intelligence (20ECSC712)
		ATR:As AI is getting more importance in industry as well as research hence AI is introduced as a core course.
		
		Action Item No.4: To increase the placement opportunities of the students.
		    4. Image and Vision Computing (20ECSC713)
		ATR:As image and video processing is getting more and more importance in the industry, Image and Vision Computing is introduced.
		
		Action Item No.5:To increase the placement opportunities of the students by looking at the industry survey.
		    5. Distributing Trust and Block Chains (20ECSC714)
		ATR:As block chain technology is getting top in placement and more and more importance in the industry, Distributed Trust and Block Chains is introduced.
		
		Action Item No.6:To meet the Industry requirements in the area of Artificial Intelligence and Deep Learning.
		    6. Deep Learning (20ECSE715)
		ATR:Deep Learning another area which is more and more importance in the industry, Deep Learning is introduced.
		
		Action Item No.7: To choose an Application of AI and to program the same.
		    7. Natural Language Processing (20ECSE716)
		ATR:Natural Language Processing is another area which is getting more and more importance in the industry and to impart the knowledge of an application in AI, Natural Language Processing is introduced.

BoS 6.6	Any other matter for discussion with the permission of the chair	

	Nil	

Resolution: 7.3 Resolved to confirm the action taken report on the minutes of its 6ᵗʰBoS meeting held on 06th June 2020. The BoS members appreciated the new initiatives taken by SoCSE.

BoS7.4	To consider the Schemes and Syllabi of the undergraduate program B.E in Computer Science and approve the same.
	a. Approval of syllabi VII & VIII Semester of 2018 - 22 batch.
	b. Ratification of scheme for 2018-22, 2019-23, 2020-24 batch.
	c. Approval of syllabi V & VI Semester of 2019 - 23 batch.
	d. Approval of syllabi III & IV Semester of 2020 - 24 batch.
	e. Approval of programming syllabus I & II Semester of 2021 - 25 batch.
	f. Approval of scheme III to VIII Semester of 2021 - 25 batch.
	g. Approval of scheme and syllabus of minor programme in CSE for 2022-24 batch

	Discussion: Based on the discussions following action items as agreed upon by everyone were finalized and the same were circulated to all the members on 23ʳᵈ June 2021. Persons responsible for these action items have already initiated the actions, which will be shared in the next BoS meeting. The details of discussion are in **Annexure 7.4**.
	
	Action Item No.1: To focus on web architecture for understanding the pipeline of web development.
	  1) Web Technologies (21ESCP304)
	
	Action Item No.2: To bring python programming skills in certain courses early in the curriculum.
	
	  1) DSA/Applied Statistics/Related courses
	
	Action Item No.3: *To introduce electives related to* AI &security*for enriching student skills.*
	  1)Internal BoS Members, and HoS.
	
	Action Item No.4:To make an analytical study of the students carrier growth wrt the electives which will provide insights for further curriculum design.
	1) Placement Coordinator, Internal BoS Members, and HoS.

Resolution 7.4: Resolved to approve the Schemes and Syllabi of the undergraduate program B.E in Computer Science and approve the same.

  a. Ratification of scheme for 2018-22, 2019-23, 2020-24 batch.

  b. Approval of syllabi VII & VIII Semester of 2018 - 22 batch.

  c. Approval of syllabi V & VI Semester of 2019 - 23 batch.

  d. Approval of syllabi III & IV Semester of 2020 - 24 batch.

  e. Approval of programming syllabus I & II Semester of 2021 - 25 batch.

  f. Approval of scheme III to VIII Semester of 2021 - 25 batch.

  g. Approval of scheme and syllabus of minor programme in CSE for 2022-24 batch

BoS7.5	To consider the Schemes and Syllabi of the postgraduate program.
	a) Approval of scheme & syllabi of 2021 - 23 batch.
	b) Approval of MS (Engg) by Research scheme and syllabi of 2020 – 23 batch.
	Discussion: Based on the discussions following action items as agreed upon by everyone were finalized and the same were circulated to all the members on 23ʳᵈ June 2021. Persons responsible for these action items have already initiated the actions, which will be shared in the next BoS meeting. The details of discussion are in **Annexure 7.5.**

Action Item No.1:Data Mining and Machine Learning - The credits are changed from   3-0-0 to 3-0-1. To give hands on experience to the students.
1. Data Mining and Machine Learning - 20ECSC702 (3-0-1)

Action Item No.2:Course title Advance Computer Networks is Changed to Computer Networks
2. Computer Networks - 20ECSC703 (3-0-1)

Action Item No.3:Web Technology Laboratory is shifted from first semester to second semester to balance the load and to strengthen the foundations required.
3. Web Technology Laboratory - 20ECSP708 (0-0-2)

Action Item No.4:Image and Vision Computing title changed to Image and Video Processing to concentrate on both image and video processing.
4. Image and Video Processing - 20ECSC713 (2-0-1)

Action Item No.5:Credits of Design and analysis of Algorithms changed from 2-0-2 to 3-0-1 to focus on theoretical analysis and to implement the same.
5. Design and Analysis of Algorithms - 20ECSC709 (3-0-1)

Action Item No.6:Industrial/ In-House Training: The Credits are changed from 0-0-8 to 0-0-6 to introduce two new courses at Third Semester.
6. Industrial/ In-House Training - 20ECSW801 (0-0-6)

Action Item No.7:Minor Project: The credits are changed from 0-0-10 to 0-0-8 to introduce two new courses at Third Semester
7. Minor Project -20ECSW802 (0-0-8)

Action Item No.8:Cryptography and Network Security is added as a new course to give more importance to the security aspects of the networks.
8. Cryptography and Network Security - 21ECSC701 (3-0-1)

Action Item No.9:Computer Graphics is added as a new elective to meet the latest need of the industry
9. Computer Graphics - 20ECSE716 (2-0-1)

Action Item No.10:Block-chain and Distributed Ledgers is introduced to enhance the placement opportunities to the students.
10. Block-chain and Distributed Ledgers - 21ECSC801 (2-0-1)

Action Item No.11:Mobile Application Development is introduced to impart the skill of mobile application development.
11. Mobile Application Development - 21ECSC802 (2-0-1)

Action Item No.12:Publications:The BoS Members suggestion: Publications by PG students to be at least Scopus Indexed One Paper per student to be published. The BoSMembers appreciated the number of publications by the PG Students and Faculty members.
12. All the guides and the PG Coordinator.

Action Item No.13: To increase the opportunities for the placements of the students.
13. The Placement Officer and the PG Coordinator.

Action Item No. 14: To evaluate the effectiveness of online delivery, evaluation and arrive at innovative delivery and evaluation methods.
14. Faculty members handling PG, The PG Coordinator and The Head of the School.

Resolution 7.5: Resolved to approve the Schemes and Syllabi of the postgraduate program.
   a.   Approval of scheme & syllabi of 2021 - 23 batch.
   b.   Approval of MS (Engg) by Research scheme and syllabi of 2020 – 23 batch.

BoS7.6	Any other matter for discussion with the permission of the chair
	Nil

The Chairperson thanked all the members for the fantastic contributions.

Dr. Meena S.M.

Chairperson, BoS, SoCSE

Annexure 7.1
Discussion Item

Feedback from Employer
1. The students need to focus on C, usage of Data Structures and Algorithmic skills.
2. The students need to be exposed to Industry related project and problem statements.
3. The students are able to present their AI and ML knowledge skills via projects.
4. The students need to improve their database concepts.
5. Knowledge of multimedia networks concepts required for networking based industries.

Feedback from Faculty --- Pre BoS MOM
1. To enhance the MEAN stack development by including the React JS in Web Technologies.
2. To deliver object oriented programming concepts using C++.
3. The computer organization and architecture course content upgraded and lab tutorials needs to be introduced for effective delivery.
4. To introduce the data integration and cloud services course to upskill students for data specific industry placements.

Course Feedback:
1. The students requested to include electives like signals & systems, digital image processing, NN & deep learning related courses for project development.
2. The students requested to cover pre-requisites like data types and data visualization concepts in data mining course.

Feedback from Alumni:
1. Expose the students to recent technology trends by making them to adopt in their projects.
2. To make students participate in more and more technical competitions.
3. To identify set of companies to focus on industry-student profile match.
4. Industry institute collaborations need to be increased in the focused areas.
5. To introduce blockchain technology as a core course due to industry demand.

Feedback for PG

1	Observations/ Recommendations based on feedback

Feedback from Employer
Students should need to :
1. Explore core computer science concepts and practical applications
2. Enhance programming, problem solving, communication and learning new technologies skils.
3. Seek more hands on real time applications of all courses
4. Expand depth and quality of min, minor and capstone projects.
5. Illustrate open source in developing experiments and projects

Feedback from Alumni:
1. Revelation towards recent technologies Deep learning and Block chain
2. Allow to do industrial training asinhousetraining in the university.
3. Encourage to design mathematical model and prototype model in developing the projects.

Feedback from Faculty --- Pre BoS MOM
1. Include two courses in 3rd semester to enhance learning of studentstowards industry need.
2. Introduced the electives on current trends to help the students for research and developing projects

3.	Modify the allocation of credits for courses like Problem solving Lab, Design and analysis of algorithms.

Course Feedback:

1**.**	The course contents needs to be relevant with current state of art and practices in the industry
2.	More exposure towards current programming skills viz. python as scripting language.
3.	The courses like Operating systems, computer networks, image and video processing need to be connected with real time examples.

Annexure 7.4	
Discussion Item	
Actions taken: Based on the feedback from stakeholders, employers, faculty, alumni and students the following actions are initiated.	**Course Revised/ Added**
	Courses Revised:
Inclusion of web architecture followed by React JS in place of DJango to cover the complete Mean stack in Web Technologies course.	Web Technologies Lab (21ESCP304) (0-0-2)
The computer organization and architecture course content upgraded and lab tutorials introduced for effective delivery.	COA 21ECSC201 (3-0-1)
Additional credit is given to DM&A course for covering the pre-requisite wrt python programming, data types and data visualization at 4th sem.	Data Mining & Analysis (4-0-1)
	Courses Introduced:
Introduction of Blockchain and Distributed Ledgers course with concepts on cryptography, consensus mechanism, blockchain platforms & its applications.	Blockchain and Distributed Ledgers (21ECSC307) (2-0-1)
Elective baskets: Signals & Systems, Fundamentals of Image and Video Processing, Neural Networks & Deep Learning introduced to upgrade knowledge and skills for conducting industry collaborative projects (Samsung, Spicer India, Humanoid)	Signals & Systems (21ECSE313) (3-0-0) Fundamentals of Image & Video Processing (21ECSE312) (3-0-0) Neural Networks & Deep Learning (21ECSE314) (3-0-0)
DevOps course for skill enhancement in software development was introduced as per the suggestion of BoS members.	DevOps (21ECSE310)(0-0-3)
Multimedia Networks course introduced for enhancement of employability.	Multimedia Networks (21ECSE311) (3-0-0)
Data Integration & Cloud Services course in collaboration with Informatica towards enhancing collaborative teaching and learning.	Data Integration & Cloud Services (21ECSE331)(0-0-3)

Annexure 7.5	
Discussion Items – MTech, CSE	
Actions taken: Based on the feedback from stakeholders, employers, faculty, alumni and students the following actions are initiated.	**Course Revised/ Added**
	Courses Revised:
Data Mining and Machine Learning - The credits are changed from 3-0-0 to 3-0-1. To give hands on experience to the students.	Data Mining and Machine Learning - 20ECSC702 (3-0-1)
Course title Advance Computer Networks is Changed to Computer Networks	Computer Networks - 20ECSC703 (3-0-1)
Web Technology Laboratory is shifted from first semester to second semester to balance the load and to strengthen the foundations required.	Web Technology Laboratory - 20ECSP708 (0-0-2)
Image and Vision Computing title changed to Image and Video Processing to concentrate on both image and video processing.	Image and Video Processing - 20ECSC713 (2-0-1)
Credits of Design and analysis of Algorithms changed from 2-0-2 to 3-0-1 to focus on theoretical analysis and to implement the same.	Design and Analysis of Algorithms - 20ECSC709 (3-0-1)
Industrial/ In-House Training: The Credits are changed from 0-0-8 to 0-0-6 to introduce two new courses at Third Semester.	Industrial/ In-House Training - 20ECSW801(0-0-6)
Minor Project: The credits are changed from 0-0-10 to 0-0-8 to introduce two new courses at Third Semester	Minor Project -20ECSW802 (0-0-8)
	Courses Introduced:
Cryptography and Network Security is added as a new course to give more importance to the security aspects of the networks.	Cryptography and Network Security - 21ECSC701 (3-0-1)
Computer Graphics is added as a new elective to meet the latest need of the industry.	Computer Graphics - 20ECSE716 (2-0-1)
Block-chain and Distributed Ledgers is introduced to enhance the placement opportunities to the students.	Block-chain and Distributed Ledgers - 21ECSC801 (2-0-1)
Mobile Application Development is introduced to impart the skill of mobile application development.	Mobile Application Development - 21ECSC802 (2-0-1)
Publications:The BoS Members suggestion: Publications by PG students to be at least Scopus Indexed One Paper per student to be published. The Bos Members appreciated the number of publications by the PG Students and Faculty members.	

Department of Electrical & Electronics Engineering
Structure of Board of Studies
7th BOS Meeting 5th June 2021

The meeting of Board of Studies in E&E Engineering is convened on Saturday 5th June 2021 to discuss & approve the following. The meeting will be conducted online using MS Teams at 10.30am.

1. Approval for Scheme & Syllabi of 2018-22 batch for 7th & 8th semester

2. Approval for Scheme & Syllabi of 2019-23 batch for 5th & 6th semester

3. Approval for Scheme & Syllabi of 2020-24 batch for 3rd & 4th semester

4. Approval for Scheme & Syllabi of 2021-25 batch for 3rd to 8th sem scheme & Syllabi of I /II semester Basic Electrical Engineering

BOS Members

S. No.	Category	Nomination of the Committee		Name of the Person	Signature
1	Concerned Head of the Department/ School/ Centre	Chairperson	1	Dr. A B Raju Prof. & Head, Electrical & Electronics Engg. Dept.	
2	ONE Professor, ONE Associate Professor and ONE Assistant Professor from the Department/ School/ Centre, nominated by the Dean Academic Affairs	Members	1	Dr. S B Karjigi Professor, Electrical & Electronics Engg. Dept.	
			2	Smt. Rohini B Jyoti Associate Professor, Electrical & Electronics Engg. Dept.	
			3	Mr. Sachin Angadi Asst. Professor, Electrical & Electronics Engg. Dept.	
3	TWO Subject experts from outside the college nominated by the Vice-Chancellor	Members	1	Dr. Sandeep Asst. Professor, E&E Dept., MNIT, Jaipur	Present
			2	Dr. Arjun Mudlapur Post-Doctoral Fellow IISc , Bangalore	Present
4	TWO representative from industry corporate sector/ allied area relating to placement nominated by the Vice-Chancellor	Members	1	Dr. Shamin Dudu RBEI, Bangalore.	Present
			2	Mr. Allahbaksh Asadullah Product Technical Architect. Infosys, Bangalore. Allahbaksh_Asadullah@infosys.com	Present

REGISTRAR
KLE Technological University
HUBBALLI-580 031

Head of the Department
Electrical & Electronics Engineering
KLE Technological University.,
HUBBALLI-31.

S. No.	Category	Nomination of the Committee		Name of the Person	Signature
5	Co-opted Members	Members	1	Mr. Anoopkumar Patil Asst. Professor, Electrical & Electronics Engg. Dept.	
			2	Mrs. Kavita Chachadi Asst. Professor, Electrical & Electronics Engg. Dept.	
			3	Mrs. Pavana Asst. Professor, Electrical & Electronics Engg. Dept.	
6	ONE Post-graduate meritorious alumnus nominated by the Vice-Chancellor	Member	1	Dr. Savita Angadi, Scientist-Software Specialist – Analytics, SAS Research and Development (India) Pvt. Ltd. Pune.	Present
7	ONE Student Member representing each of the program offered by the Department/ School/ Centre	Member	2	Ms. Saishree Chavan	Present
8	ONE Senior faculty member nominated by the concerned Head of the Department	Member	1	Mrs. Minal Salunke Asst. Professor, Electrical & Electronics Engg. Dept.	

(Dr P. G. Tewari)

DEAN ACADEMIC AFFAIRS

KLE Technological University Hubballi

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HUBBALLI-580 031

Head of the Department
Electrical & Electronics Engineering
KLE Technological University,
HUBBALLI-31.

Department of Electrical & Electronics Engineering

MINUTES OF MEETING OF BOS HELD ON 5th June 2021

The meeting of the Board of Studies in Electrical & Electronics Engineering is convened on 5th June 2021 at 10.30am, through MS Teams.

The meeting began with the Chairman welcoming the members of the BOS and other invited faculty members. The following agenda points were taken up for discussion.

Agenda 1:
Review of Actions initiated in the last meeting.

Resolution 1:
The actions initiated in the previous BOS were reviewed, and the minutes of the last meeting were confirmed.

Agenda 2:
Approval of Scheme & Syllabi for 2018-22 batch for 7th & 8th semester.

Resolution 2:
The Scheme & Syllabi for 7th & 8th semester for students admitted to UG program in Electrical & Electronics Engineering 2018-22 was presented.

Discussion 2:
The following discussions were done.
- Appreciation towards inclusion of dynamic modelling of ac electric machines in Power Train Control Laboratory.
- It was asked to fine tune the Power System syllabus towards inclusion of distributed generation concepts from the futuristic perspective.
- Artificial Intelligence course should focus more towards application of AI techniques in Electrical Engineering domain.
- Institutional Research Project introduced at 7th sem to enhance research capability among undergraduate students in Electric Vehicle domain.
- The content of unit 3 of the course AUTOSAR &infotainment system is changed and the title of the course is changed to AUTOSAR.

Agenda 3:
Approval of Scheme & Syllabi for 2019-23 batch for 5th & 6th semester.

Resolution 3:
The Scheme & Syllabi for 5th & 6th semester for students admitted to UG program in Electrical & Electronics Engineering 2019-23 was presented.

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Department of Electrical & Electronics Engineering

Discussion 3:

The following discussions were done.

- OS and Embedded systems course should cover topics on routines and virtuallization.
- Linear Integrated Circuits and Control System Lab was introduced. Designing and implementation of LIC circuits should be introduced.
- Regarding the Machine Learning course Mrs. Savita Angadi wants to have offline discussion with the course teachers.
- It was asked to refer Battery University website for better understanding of the topics in BMS course.
- Appreciation towards curriculum design of C++ and ML course.

Agenda 4:

Approval of Scheme & Syllabi for 2020-24 batch for 3rd & 4th semester.

Resolution 4:

The Scheme & Syllabi for 3rd & 4th semester for students admitted to UG program in Electrical & Electronics Engineering 2020-24 batch was presented.

Discussion 4:
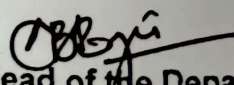
The following discussion was done.

- Engineering Mathematics course should include Vector Calculus and Multivariate Calculus topics which would easily aid students in learning the ML and AI course.
- It was asked to include State Space Analysis topic in Linear Control System course.

Agenda 5:

Approval of Scheme & Syllabi for 2020-24 batch for 3rd to 8th semester.

Resolution 5:
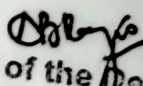
The Scheme & Syllabi for 3rd to 8th semester for students admitted to UG program in Electrical & Electronics Engineering 2020-24 discussed and approved with no changes. The proposed curriculum scheme was approved. The structure would be relooked and be taken up for discussion again in the next meeting.

Agenda 6:

Approval of Syllabus of 2021-25 batch for I/II semester Basic Electrical Engineering.

Resolution 6:

The Syllabi for I/II semester Basic Electrical Engineering for students admitted to First Year Engineering during 2020-24 was presented and approved.

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Agenda 7:
Any other matter with the permission of the chair.

Resolution 7:
There were no other points for discussion.

The board empowered the chairman to revise/modify the curriculum structure and syllabus wherever required if the circumstances so demand and the same could be ratified in the next meeting.

The meeting was concluded with vote of thanks by the Chairman.

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Batch 2020-24

Semester: III

No	Code	Course	L-T-P	Credits	Contact Hours	ISA	ESA	Total	Exam Duration
1	15EMAB203	BS: Integral Transforms and Statistics	4-0-0	4	4	50	50	100	3 hours
2	15EECC201	PC1: Circuit Analysis	4-0-0	4	4	50	50	100	3 hours
3	15EECC202	PC2: Analog Electronic Circuits	4-0-0	4	4	50	50	100	3 hours
4	19EECC201	PC3: Digital Circuits	4-0-0	4	4	50	50	100	3 hours
5	19EECC202	PC4: Signals & Systems	4-0-0	4	4	50	50	100	2 hours
6	15EECP201	PCL1: Digital Circuits Lab	0-0-1	1	2	80	20	100	2 hours
7	15EECP202	PCL2: Analog Electronic Circuits Lab	0-0-1	1	2	80	20	100	2 hours
8	21EECF202	ES2: Microcontroller Architecture & Programming	0-0-3	3	6	80	20	100	2 hours
	18EECF204	C Programming (Dip)	0-0-2	2	4				
TOTAL			**20-0-5**	**25**	**32**	**490**	**310**	**800**	

Note : Regular 25 Credit
Diploma : 24 Credits

ISA: In Semester Assessment **ESA**: End Semester Assessment **L**: Lecture **T**: Tutorials **P**: Practical
HS (Humanities) = H; B(Basic Science) = B; ES(Engineering Science) = F; PC (Program Core) = C;
EC(Any Elective) = E; PW(Project Work) = W; Research = R; Internship= I; Seminar = S; Colloquium
= V; Self-study = Y; Special topic= T; Apprenticeship = A; Laboratory / Practical = Field Work = D; and
Non-credit course = N.

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Semester: IV

No	Code	Course	L-T-P	Credits	Contact Hours	ISA	ESA	Total	Exam Duration
1.	17EMAB208	BS: Linear Algebra &Partial Differential Equations	4-0-0	4	4	50	50	100	3 hours
2.	21EECC209	ES4: Electromagnetic Fields and Waves	3-0-0	3	3	50	50	100	3 hours
3.	19EECC203	PC5: Linear Integrated Circuits	4-0-0	4	4	50	50	100	3 hours
4.	15EECC206	PC6: Control Systems	4-0-0	4	4	50	50	100	3 hours
5.	15EECC207	PC7: ARM Processor & Applications	3-0-0	3	3	50	50	100	3 hours
6.	15EECC208	PC8: Digital System Design using Verilog	0-0-2	2	4	80	20	100	2 hours
7.	15EECP203	PCL3: Data acquisition and controls Lab	0-0-1	1	2	80	20	100	2 hours
8.	15EECP204	PCL4: ARM Microcontroller Lab	0-0-1	1	2	80	20	100	2 hours
9.	21EECF201 21EECF203	PCL3: Data Structure Applications Lab	0-0-2	2	4	80	20	100	2 hours
		PCL3: Data Structure Using C Lab(Diploma)	0-0-3	3	6				
TOTAL			18-0-6	24	30	570	330	900	

Note : Regular 24 Credit
       Diploma : 25 Credits

	Technological	**FORM**		
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Laboratory Title: Microcontroller Architecture & Programming		**Lab. Code: 21EECF202**
ISA Marks: 80	**ESA Marks: 20**	**Total Marks: 100**
Teaching Hours: 72 Hrs	**Contact Hours: 6 Hrs/week**	**Credits: 0-0-3**

Unit -I	
Chapter 1: Microprocessors and microcontroller	
Introduction, Microprocessors and Microcontrollers, A Microcontroller Survey, RISC & CISC CPU Architectures, Harvard & Von-Neumann CPU architecture.	
Chapter 2: The 8051 Architecture	
8051 Microcontroller Hardware, Input / Output Pins, Ports and Circuits, semiconductor Memories, Interfacing external RAM & ROM memories.	
Chapter 3: Addressing Modes and Arithmetic Operations	
Addressing modes, External data Moves, Code Memory, Read Only Data Moves / Indexed Addressing mode , Data exchanges, stack concept and related instructions ,example programs. Logical Operations: Introduction, Byte level, logical Operations, Bit level Logical Operations , Rotate and Swap Operations, Example Programs, Arithmetic Operations: Introduction, Flags, Incrementing and Decrementing, Addition, Subtraction Multiplication and Division, Decimal Arithmetic, Example Programs.	
Unit – II	
Chapter 4 Branch operations	
Jump Operations: Introduction, The JUMP and CALL ,Program range, Jump calls and Subroutines ,Interrupts and Returns,Example Problems.	
Chapter 5: 8051 Programming in 'C'	
Data Types and Time delays in 8051C,I/O Programming, Logic operations,Data Conversion programs, Accessing code ROM space,. Data serialization.	
Chapter 6: Counter/Timer Programming in 8051	
Programming 8051 Timers, Programming Timer0 and Timer1 in 8051C	
Unit – III	
Chapter 7: Serial Communication	
Basics of Serial Communication, 8051 connections to RS-232,8051 Serial Communication modes, Programming, Serial port programming in C.	
Chapter 8: 8051 interfacing and applications	**4 hours**
Interfacing 8051 to LCD, Keyboard, ADC, DAC, Stepper Motor, DC Motor. Chapter 9: Interrupts	
Introduction to interrupts, interrips vs polling, classification of inerrupts, inerrupt priority, inerrupt vector table, inerruptt service routine	**2 hours**

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Text Book

1. *" The 8051 Microcontroller Architecture, Programming & Applications "* by ' Kenneth J. Ayala', Penram International, 1996
2. *" The 8051 Microcontroller and Embedded systems ",* by ' Muhammad Ali   Mazidi and Janice Gillispie Mazidi', Pearson Education, 2003

References

1. " *Programming and Customizing the 8051 Microcontroller* ", by 'Predko',   TMH.

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Program: IV Semester Bachelor of Engineering (Electronics & Communication Engineering)		
Course Title: Electromagnetic Fields and Waves	**Course Code: 21EECC209**	**Teaching Hours**
L-T-P: 3-0-0 · **Credits: 3**	**Contact Hours: 3 Hrs/week**	
ISA Marks: 40 · **ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 40Hrs · **Examination Duration: 3 Hrs**		

Content	Hrs
Unit – 1	
Chapter No. 1. Electrostatic Fields Introduction, Coulomb's Law and Field Intensity, Electric Fields Due to Continuous Charge Distribution, Electric Flux Density, Gauss's Law – Maxwell's Equation, Application of Gauss's Law, Electric Potential, Relationship between E and V – Maxwell's Equation, An Electric Dipole and Flux Lines, Energy Density in Electrostatic Fields.	5 hrs
Chapter No. 2. Electric Fields in Material Space Introduction, Properties of materials, Convection and Conduction Currents, Conductors, Polarization in Dielectrics, Dielectric Constant and strength, Continuity Equation and Relaxation Time, Boundary Conditions.	5 hrs
Chapter No. 3. Electrostatic Boundary-Value Problems Introduction, Poisson's and Laplace's Equations, Uniqueness Theorem, General Procedure for Solving Poisson's or Laplace's Equation, Resistance and Capacitance, Method of Images.	5 hrs
Unit - 2	
Chapter No. 4. Magnetostatic Fields Introduction, Biot-Savart's Law, Ampere's Circuit Law—Maxwell's Equation, Applications of Ampere's Law, Magnetic Flux Density—Maxwell's Equation, Maxwell's Equations for Static EM Fields, Magnetic Scalar and Vector Potentials, Derivation of Biot-Savart's Law and Ampere's Law.	6 hrs
Chapter No. 5. Magnetic Forces, Materials and Devices Introduction, Forces due to Magnetic Fields, Magnetic Torque and Moment, A Magnetic Dipole, Magnetization in Materials, Classification of Magnetic Materials, Magnetic Boundary Conditions, Inductors and Inductances, Magnetic Energy, Magnetic Circuits, Force on Magnetic Materials	6 hrs
Chapter No. 6. Maxwell's Equations Introduction, Faraday's Law, Transformer and Motional Electromotive Forces, Displacement Current, Maxwell's Equations in Final Forms, Time-Varying Potentials, Time-Harmonic Fields.	3 hrs
Unit - 3	
Chapter No. 7. Electromagnetic Wave Propagation Introduction, Wave Propagation in Lossy Dielectrics, Plane Waves in Lossless Dielectrics, Plane Waves in Free Space, Plane Waves in Good Conductors, Power and the Poynting Vector, Reflection of a Plane Wave at Normal Incidence, Reflection of a Plane Wave at Oblique Incidence.	5 hrs
Chapter No. 8. Transmission Lines Introduction, Transmission Line Parameters, Transmission Line Equations, Input Impedance, SWR, and Power, The Smith Chart, Transients on Transmission Lines, Microstrip Transmission Lines, Some Applications of Transmission Lines.	5 hrs

Text Book(List of books as mentioned in the approved syllabus)
1. William Hayt. Jr. John A. Buck, Engineering Electromagnetics ,9th edition,McGraw Hill Education,2018.
2. R. K. Shevgaonkar,‖Electromagnetic Waves McGraw Hill Education; 1st edition,2017
3. ~~Mathew N. O. Sadiku, Elements of Electromagenics; Sixth edition, Oxford University , 2015~~

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Batch 2019-23

Semester: V

No	Code	Course	L-T-P	Credits	Contact Hours	ISA	ESA	Total	Exam Duration
1	19EECC301	PC10:CMOS VLSI Circuits	4-0-0	4	4	50	50	100	3 hours
2	21EECC302	PC11: Communication System I	4-0-0	4	4	50	50	100	3 hours
3	17EECC303	PC12: Digital Signal Processing	4-0-0	4	4	50	50	100	3 hours
4	17EECC304	PC13: Operating System & Embedded Systems Design	3-0-0	3	3	50	50	100	3 hours
5	17EECP301	PCL5: Communication and signal processing Lab	0-0-1	1	2	80	20	100	2 hours
6	17EECP302	PCL6: RTOS Lab	0-0-1	1	2	80	20	100	2 hours
7	19EECP301	PCLx: CMOS VLSI Circuits Lab	0-0-1	1	2	80	20	100	2 hours
8	17EECC307	PC15: Machine Learning	2-0-1	3	4	50	50	100	3 hours
9	17EECW301	P1: Mini Project	0-0-3	3	6	50	50	100	2 hours
TOTAL			17-0-7	**24**	**31**	**540**	**360**	**900**	

ISA: In Semester Assessment **ESA**: End Semester Assessment **L**: Lecture **T**: Tutorials **P**: Practical
HS (Humanities) = H; B(Basic Science) = B; ES(Engineering Science) = F; PC (Program Core) = C;
EC(Any Elective) = E; PW(Project Work) = W; Research = R; Internship= I; Seminar = S; Colloquium
= V; Self-study = Y; Specialtopic= T; Apprenticeship = A; Laboratory / Practical = P;Field Work = D;
and Non-credit course = N.

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Semester: VI

No	Code	Course	L-T-P	Credits	Contact Hours	ISA	ESA	Total	Exam Duration
1	16EHSC301	H3: Professional Aptitude and Logical reasoning.	3-0-0	3	3	50	50	100	3 hours
2	17EECC305	PC13:Automotive Electronics	3-0-0	3	3	50	50	100	3 hours
3	17EECC306	PC14:Computer Communication Networks	4-0-0	4	4	50	50	100	3 hours
4	21EECC307	PC11: Communication System II	3-0-0	3	3	50	50	100	3 hours
5	17EECEXXX	PSE Elective 1	3-0-0	3	3	50	50	100	3 hours
6	17EECP303	PCL7: Computer Communication Networks Lab	0-0-1	1	2	80	20	100	2 hours
7	17EECP304	PCL8: Automotive Electronics Lab	0-0-1	1	2	80	20	100	2 hours
8	17EECW302	P2: Minor Project	0-0-6	6	12	50	50	100	2 hours
TOTAL			16-0-8	**24**	**32**	**460**	**340**	**800**	

ISA: In Semester Assessment **ESA**: End Semester Assessment **L**: Lecture **T**: Tutorials **P**: Practical
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EC(Any Elective) = E; PW(Project Work) = W; Research = R; Internship= I; Seminar = S; Colloquium
= V; Self-study = Y; Specialtopic= T; Apprenticeship = A; Laboratory / Practical = P;Field Work = D;
and Non-credit course = N.

Elective VI (Batch 2019-23)

									Semester: VI

No	Code	Course: PSE1: Elective	Category	L-T-P	Credits	Contact Hours	ISA	ESA	Total	Exam Duration
PSE Elective 1	17EECE301	Analog Circuits Design	PSE	0-0-3	3	6	100		100	3Hours
	19EECE322	Introduction to Deep Learning		2-0-1		4	50	50		
	17EECE302	Advanced Digital Logic Design		0-0-3		3	100			

	17EECE307	Internet of Things		2-0-1		4	50	50		
	21EECE308	Information Theory and Coding		3-0-0		3	50	50		
	17EECE310	Embedded Intelligence Systems		0-0-3		9	80	20		
	20EECE340	Multi core Architecture & Programming		2-0-1		4	50	50		
	18EECE421	OOPS using C++		2-0-1		4	50	50		

![KLE Technological University logo] KLE Technological University Creating Value ___ Leveraging Knowledge ___ Earlier known as B. V. B. College of Engineering & Technology	**FORM** **ISO 9001: 2008 –** **BVBCET** School of Electronics	**Document #:** **FMCD2005**	**Rev: 1.0**
Title: Curriculum structure semester wise **Electronics and Communication Engineering**		**Page 9 of 13**	
		Year: 2017-21	

Program: V Semester Bachelor of Engineering (Electronics & Communication Engineering)			Teaching Hours
Course Title: Communication Systems I		**Course Code: 21EECC302**	
L-T-P: 4-0-0	**Credits: 4**	**Contact Hours: 4 Hrs/week**	
ISA Marks: 50	**ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 50Hrs	**Examination Duration: 3 Hrs**		

Content	
Unit – 1	**Hours**
Chapter 01. Analog Communication Techniques: Introduction, need for modulation, Amplitude modulation, Time-Domain description, Frequency-Domain description. Generation of AM wave- square law modulator. Detection of AM waves, square law and envelope detector. Double side band suppressed carrier modulation (DSBSC), Generation of DSBSC waves: balanced modulator. Coherent detection of DSBSC modulated waves: Costas loop. Quadrature carrier multiplexing. Single side band modulation, Frequency-Domain and time-domain description of SSB modulated Signals-Generation, detection. Comparison of amplitude modulation techniques, Frequency division multiplexing (FDM).	**14 Hours**
Chapter 02. Receiver and its characteristics: Radio receivers: Tuned radio frequency receiver, Superheterodyne receiver Sensitivity and selectivity, selection of IF. Block diagram and features of Communication Receiver.	**06 Hours**
Unit – 2	
Chapter 03. Angle modulation: Basic definitions, Phase and frequency modulation, Phase and frequency Deviation, Narrow and Wide band frequency modulation. Spectrum and phase diagram of FM Transmission band width of FM waves, Effect of Modulation index on bandwidth, Generation of FM Waves: indirect FM, Direct FM, Demodulation of FM Waves,	**08 Hours**
Chapter 04. Random Variables and processes: Random variables-average, variance, CDF, PDF, Joint CDF and PDF, Random Process- Stationary, Mean, Correlation and Covariance functions., autocorrelation function, Cross-correlation functions. Power spectral density: Properties of the spectral density, Gaussian Process: Central limit theorem, Properties of Gaussian processes.	**06 Hours**
Chapter 05. Noise in Continuous wave modulation Systems: Sources of noise: Shot noise, thermal noise, White noise. Frequency domain representation, Effect of filtering on Gaussian noise, Mixing and superposition of Noises, Noise equivalent bandwidth, Quadrature components of noise, Narrowband noise, Noise figure., Equivalent noise temperature. Receiver model, Noise in AM Receivers, Noise in FM receivers	**06 Hours**
Unit - 3	
Chapter 06. Introduction to Sampling: Sampling theorem, Quadrature sampling of Band pass signals, Reconstruction of a message from its samples. Time Division Multiplexing (TDM) Signal distortion in Sampling.	**10 Hours**

	FORM	**Document #:**	
KLE Technological University _Creating Value Leveraging Knowledge_ Earlier known as B. V. B. College of Engineering & Technology	**ISO 9001: 2008 – BVBCET** School of Electronics	**FMCD2005**	**Rev: 1.0**
Title: Curriculum structure semester wise **Electronics and Communication Engineering**		**Page 10 of 13**	
		Year: 2017-21	

Text book:

1. "Communication Systems" by 'Simon Haykin' John Wiley 2003. 5th edition , 2009
2. "Principles of communication Systems", by Taub & Schilling, 2nd edition , TMH.
3. "Digital communications", Simon Haykin, John Wiley, 2006

References

4. Communication Systems, by B.P.Lathi ,
5. Ganesh Rao, K N Haribhat, Analog Communication, Sanguine, 2009
6. Communication Systems by Harold. P.E, Stern Samy. A. Mahmond, Pearson Education, 2004.
7. Electronic communication systems, Kennedy and Davis, TMH, Edn. 6, 2012

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KLE Technological University — Creating Value, Leveraging Knowledge — Earlier known as B. V. B. College of Engineering & Technology	FORM ISO 9001: 2008 – BVBCET School of Electronics	Document #: FMCD2005	Rev: 1.0
Title: Curriculum structure semester wise **Electronics and Communication Engineering**		**Page 11 of 13**	
		Year:	

Program: VI Semester Bachelor of Engineering (Electronics & Communication Engineering)		**Teaching Hours**
Course Title: Communication Systems II	**Course Code: 21EECC307**	
L-T-P: 3-0-0 — **Credits: 3**	**Contact Hours: 3 Hrs/week**	
ISA Marks: 50 — **ESA Marks: 50**	**Total Marks: 100**	
Teaching Hours: 40Hrs — **Examination Duration: 3 Hrs**		

Content	
Unit – I	**Hours**
Chapter 01. Quantization and Coding techniques: Quantization, PCM, quantization noise and SNR, robust quantization, DPCM, DM, ADM, coding speech at low bit rates, applications, Binary data formats	**06 Hrs**
Chapter 02. Digital Modulation Techniques : Digital Modulation formats, Coherent binary modulation techniques, Coherent quadrature modulation techniques. Non-coherent binary modulation techniques, Comparison of Binary and Quaternary Modulation techniques. M-ary Modulation Techniques, effect of ISI, Bit versus Symbol error probability, Synchronization and applications	**10 Hrs**
Unit – II	
Chapter 03. Base band shaping for data transmission: Base-Band Shaping for Data Transmission, Discrete PAM signals, power spectra of discrete PAM signals. ISI, Nyquist's criterion for distortion less base-band binary transmission, correlative coding, eye pattern, base-band M-ary PAM systems, and adaptive equalization for data transmission.	**06 Hrs**
Chapter 04. Detection and Estimation: Gram-Schmidt Orthogonalization procedure, geometric interpretation of signals, response of bank of correlators to noisy input, Detection of known signals in noise, probability of error, correlation receiver, matched filter receiver, detection of signals with unknown phase in noise, estimation: concept and criteria, maximum likelihood estimation.	**08 Hrs**
Chapter 05. Introduction to Information Theory: Basics of Information, Discrete communication channels.	**02 Hrs**
Unit - III	
Chapter 06. Information Theory: Information Theory: Introduction, Measure of information, Average information content of symbols in long independent sequences, Average information content of symbols in long dependent sequences.	**08 Hrs**

Text Book:

1. Simon Haykin, Digital communications, John Wiley, 2006
2. K. Sam Shanmugam, Digital and analog communication systems, John Wiley, 2006

Reference Book:

1. Simon Haykin, An introduction to Analog and Digital Communication, John Wiley, 2003

		FORM		
KLE Technological University Creating Value Leveraging Knowledge *Earlier known as* B. V. B. College of Engineering & Technology		**ISO 9001: 2008 – BVBCET** School of Electronics	**Document #: FMCD2005**	**Rev: 1.0**
Title: Curriculum structure semester wise **Electronics and Communication Engineering**				**Page 12 of 13**
				Year:

Batch 2018-22
Semester: VII

No	Code	Course	Category	L-T-P	Credits	Contact Hours	ISA	ESA	Total	Exam Duration
1	18EECC401	PC16: Wireless & Mobile Communication	PSC	3-0-0	3	3	50	50	100	3 hours
2	18EECE	PSE Elective 1	PSE	3-0-0	3	3	50	50	100	3 hours
3	18EECE	PSE Elective 2	PSE	3-0-0	3	3	50	50	100	3 hours
4	18EECE	PSE Elective 3	PSE	3-0-0	3	3	50	50	100	3 hours
6	18EECE	PSE Elective 4	PSE	3-0-0	3	3	50	50	100	3 hours
	20EECW401	P3: Senior Design Project	PW	0-0-6	6	12	50	50	100	3 hours
7	15EHSC402	CIPE	M	2-0-0		2	50	50	100	3 hours
TOTAL				**15-0-6**	**21**	**29**	**350**	**350**	**700**	

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Semester: VII (2018-22 Batch)

No	Code	Course: PSE: Elective	Category	L-T-P	Credits	Contact Hours	ESA	ISA	Total	Exam Duration
1.	19EECE416	Biosensor	PSE	0-0-3	3	3	-	100	100	3Hours
2.	18EECE418	Advanced Digital Logic Verification		0-0-3		6	-	100		
3.	18EECE410	Multimedia Communication		3-0-0		3	50	50		
4.	18EECE419	Physical Design-Analog		0-0-3		6	-	100		
5.	18EECE409	Design and Analysis of Algorithm		0-0-3		3	50	50		
6.	18EECE420	CMOS ASIC Design		0-0-3		6	-	100		

	Technological University Creating Value ━━━ Leveraging Knowledge ━━━ Earlier known as B. V. B. College of Engineering & Technology	**FORM** **ISO 9001: 2008 – BVBCET** School of Electronics	**Document #: FMCD2005**	**Rev: 1.0**
Title: Curriculum structure semester wise				**Page 13 of 13**
Electronics and Communication Engineering				**Year:**

7.	18EECE405	Embedded Linux		0-0-3		3	50	50	
8.	18EECE411	Microwave & Antennas		3-0-0		3	50	50	
9.	20EECE406	AUTOSAR		3-0-0		3	50	50	
10.	18EECE415	Cryptography & Network Security		3-0-0		3	50	50	
11.	19EECE403	Testing & Characterization		0-0-3		3	-	100	
12.	21EECE421	RF VLSI (New)		3-0-0		3	50	50	
13.	21EECE422	Speech Processing(New)		3-0-0		3	50	50	
14.	21EECE423	CAD for VLSI(New)		3-0-0		3	50	50	
15.	21EECE424	System on Chip Design(New)		3-0-0		3	50	50	
16.	21EECE425	Computer Graphics		0-0-3		3	-	100	

Semester: VIII

No	Code	Course	Category	L-T-P	Intern-ship	Credits	Contact Hours	ISA	ESA	Total	Exam Duration
1	18EECE	PSE Elective 5	PSE	3-0-0	6-0-0	3	3	50	50	100	3 hours
2	18EECE	Open Elective 1	OE	3-0-0		3	3	50	50	100	3 hours
3	20EECW402	Project Work	PRJ	0-0-11		11	22	50	50	100	3 hours
TOTAL				**6-0-11**		**17**	**28**	**150**	**150**	**300**	

Internship- Training: 18EECI493 – 0-0-6,   ISA: 80   ESA: 20
Internship- Project: 20EECW494-- 0-0-11,   ISA: 50   ESA: 50

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Board of Studies Meeting

of

School of Mechanical Engineering

KLE Technological University,

Hubballi, Karnataka.

Minutes

June 5, 2021

Members of BOS in Mechanical Engineering

S.No.	Name	Address	Position
1.	Dr. B B Kotturshettar	Head, School of Mechanical Engg. KLE Technological University	Chairman
2.	Dr. N R Banapurmath	School of Mechanical Engg. KLE Technological University	Member
3.	Dr. S B Burli	School of Mechanical Engg. KLE Technological University	Member
4.	Dr. P M Bhovi	School of Mechanical Engg. KLE Technological University	Member
5.	Dr. Nagesha N.	Professor, Department of Studies in Industrial and Production Engineering, University B D T College of Engineering, Davangere	Member
6.	Dr. S V Prabhu	Professor, Department of Mechanical Engineering, Indian Institute of Technology, Bombay. Professor, Indian Institute of Technology, Dharwad	Member
7.	Prashant M	Technical Manager, Quest Global, Belgaum	Member
8.	Dr. Prasanna G Bhat	General Manager, Powertrain Engineering, The Automotive Research Association of India,	Member
9.	S B Menon	CEO, Unique Circle Group, Pimpri Chinchwad, Pune,	Member
10.	Dr. P P Revankar	School of Mechanical Engg. KLE Technological University	Member Secretary
11.	Dr. Murigendrappa	Associate Professor, NITK, Surathkal	Invited Member
12.	Dr. Anand Ramani	Head of CAE, KPIT Technologies Ltd., Bangalore	Invited Member
13.	Vijaykumar R	General Manager, Mechanical Engineering, Robert Bosch Engg. and Business Solutions Pvt. Ltd., Bangalore	Invited Member
14.	Dr. S. Gopalakrishnan	Assistant Professor, Dept. of Mechanical Engineering Indian Institute of Technology, Bombay	Invited Member
15.	Dr. K G Kodancha,	School of Mechanical Engg. KLE Technological University	Invited Member
16.	Dr. V N Gaitonde	School of Mechanical Engg. KLE Technological University	Invited Member
17.	V N Sanagoudar	School of Mechanical Engg. KLE Technological University	Invited Member

Agenda

Sl No	Particulars	Page No.
1.	To confirm the action taken report on the minutes of the previous meeting held on 19th June 2020	04
2.	To consider the Schemes and Syllabus for all programs of all the semesters of UG program	05
3.	To consider the Schemes and Syllabus for all programs of PG program	06
4.	To review the Research progress	07
5.	To review the Student Performance	08
6.	To review the Outcome Based Education (OBE) framework	09
7.	To review the Online learning Initiatives during lockdown due to COVID-19	10
8.	Any other subject with the permission of the Chair	11
9.	Annexures	

Agenda 1	To confirm the action taken report on the minutes of the previous meeting held on 19th June 2020

Item No.	Description	Action Taken
2	Review of Syllabus of UG program Resolution: Resolved to approve the scheme and syllabus (1 to 8 sem) for all the respective admission batches.	The approved scheme and syllabus are being delivered.
3	Review of Syllabi of PG programs Resolution: Resolved to seek the approval of AICTE for renaming of Machine Design and Production Management PG programs and approve the scheme and structure (1 to 4 sem) for respective admission batches.	The title change of the two programs — Machine Design to Design Engineering and Production Management to Advanced Manufacturing Systems was approved by the AICTE. The BOS approved scheme and syllabi has been implemented for the batch of 2020-21.
4	Review of Research progress Resolution: Resolved to approve the research initiatives and suggested to continue with added rigor.	The research efforts are being continued by faculty members and students rigorously.
5	Student Performance Resolution: The overall student performances in UG and PG Programs were discussed and suggestions were made to enhance the overall result quality through more student engagements.	Efforts are made to enhance student engagements, though predominantly online due to pandemic, by adopting Bichronous mode,
6	Outcome of Accreditation Resolution: Members appreciated the measures to improve NIRF ranking and for securing NBA accreditation.	Noted
7	Review of Outcome Based Education (OBE) framework of the School Resolution: Resolved to continue with the existing PEOs' and POs' attainment approach	Continued.
8	Initiatives during lockdown due to COVID-19 Resolution: Members appreciated the School initiatives to ensure decent progress in academic delivery during lockdown	Noted
9	End Semester Examination(ESA) during lockdown Resolution: Resolved to approve the plan to go ahead with the ESA online for VIII semester students	ESA exams were conducted online successfully
10	Any other matter with the permission of the chair Resolution: Members appreciated the benevolent efforts made during lockdown	Noted

Action Requested: The Board of Studies was requested to confirm the action taken report on the minutes of the previous meeting held on 19th June 2020

Resolution: Resolved to confirm the action taken report on the minutes of the previous meeting held on 19th June 2020

Agenda 2	To consider the Scheme and Syllabus for all the semesters of UG program and approve the same
	A team of faculty members had series of discussions with course instructors and course coordinators about possible modifications in the scheme and syllabi. Finally, they proposed to continue with the current scheme and syllabus for the UG program. The Scheme and Syllabus to be considered for approval were: a. 2021-25 Batch 1st and 2nd Semester b. 2020-24 Batch 3rd and 4th Semester c. 2019-23 Batch 5th and 6th Semester d. 2018-22 Batch 7th and 8th Semester The Scheme and Syllabus was provided in Annexure 1.

Action Requested: The Board of Studies was requested approve for continuation of unchanged scheme and syllabus of all semesters of the UG program for the academic year 2021-22.

Discussions: The Chairman explained the procedure adopted to seek the inputs from faculty members on the proposed changes for the scheme and syllabus of UG program. Also, elaborated his views on the current curriculum on the basis of his interactions with the experts from industry, the teams visited the university for recruitment of students, the alumni serving in the corporate and also with those who run the businesses in various sectors. He also sought the inputs from the members representing education, industry and research fields.

- Dr. S V Prabhu from IIT was of the opinion to continue with the ongoing curriculum for 2021-22 considering the pandemic situation and the load on the faculty members to design their delivery for online mode. Time should be given to faculty members to adjust to the new mode and stabilize with their preparations without disturbing the content change, he added.
- S B Menon Industrialist Alumnus suggested to explore on building new verticals in Smart Manufacturing, especially in Additive Manufacturing in coming years. Industry would need experts in this upcoming area in years to come.
- Prashant M from Quest Global and Alumnus was in agreement with Menon and further said to focus on model based system engineering which can develop competency among students even working on platforms in virtual mode. However, content to this effect can be part of curriculum once the situation becomes normal, he was quick to add.
- The present curriculum has a good balance of meeting the foundational requirements and the industry expectations, expressed N R Banapurmath.

Resolution: Resolved to approve the Scheme and Syllabus of all semesters of the UG program for the academic year 2021-22.

Agenda 3	To consider the Schemes and Syllabi for all programs of PG program and approve the same
	The AICTE has approved for renaming of the PG Programs in Machine Design as Design Engineering and Production Management as Advanced Manufacturing Systems with effect from 2020-21 . The Schemes and Syllabi of two PG programs to be considered for approval were:
	a. 2021-23 Batch 1st and 2nd Semester – Design Engineering Program
	b. 2020-22 Batch 3rd and 4th Semester – Design Engineering Program
	c. 2021-23 Batch 1st and 2nd Semester – Advanced Manufacturing Systems Program
	d. 2020-22 Batch 3rd and 4th Semester – Advanced Manufacturing Systems Program
	The syllabus of Advanced Manufacturing Systems had no major changes in overall Program structure. The concerned course instructors based on the experiences gained through curriculum delivery proposed minor changes –
	"PLM Fundamentals" and "PLM Advanced" theory courses revised by re-allotted teaching hours.
	"PLM Technical Lab" updated as "PLM Advanced Lab" with 1- extra credit to immersive hands-on experience to students.
	The contents in "Project Feasibility and Analysis" theory course made concise to facilitate credit re-allotment.
	It had been proposed to continue with the current syllabus of Design Engineering Program.
	The Schemes and Syllabi was provided in Annexure 2.

Action Requested: The Board of Studies was requested approve for minor changes in the scheme and syllabus of AMS and unchanged scheme and syllabus of DE - the PG programs for the academic year 2021-22.

Discussions: The PG Coordinators, V N Gaitonde for Advanced Manufacturing Systems and K G Kodancha for Design Engineering informed the board about AICTE approval to the name change of their respective programs. V N Gaitonde explained the minor change in credit adjustment that was made in the AMS curriculum to help streamline the delivery flow.

- Prasanna Bhat, ARAI remarked that the change would strengthen the hands-on exposure to students in acquiring competency on effectively deploying the PLM tools.

Resolution: Resolved to approve the schemes and syllabi of AMS and DE - the PG programs for the academic year 2021-22.

Agenda 4	To review the Research progress
	The research output by faculty members was reasonable despite a lot of hurdles being faced for experimental work due to COVID-19.
	The research work by students was severely affected by the pandemic. An opportunity was created for the next batch to register for Research Experience for Undergrad course at the Sixth semester itself unlike earlier it used to be at Seventh semester. About 10 students had registered for the course.
	Annexure 3 gave the details of research output.

Action Requested: The Board of Studies was requested to review the progress of the School in research.

Discussions: The Research Coordinator, P P Revankar briefed the progress on research front both by the faculty members and students. He also brought to the notice of the board about pursuing research in challenging times.

- N Nagesha from UBDT appreciated the sustained progress while expressed his apprehensions about the continued progress in publications due to the effect of second wave of COVID-19.

Resolution: The School to make continued efforts for the improved research output both qualitatively and quantitatively.

Agenda 5	To review the Student Performance
	The End semester results — Pass % and Average SGPA showed semester to semester and year to year mixed performance by students.
	The student placement showed 133 job offers so far — about 13% increase from last time. However, the no. of students placed was at 33% which is 5% less compared to previous batch till date. The placement activity for the current year is still on.
	Annexure 4 gave the student results and placement statistics.

Action Requested: The Board of Studies was requested to review the student progress in placement.

Discussions: Prabhakar B, Placement Coordinator gave the placement statistics for 2020-21. He also expressed hope that the number of students getting placement would cross 100 in the remaining 2-3 months' time.

- R Vijaykumar from Bosch informed the performance of interns was satisfactory and the same resulted in absorbing 10 of them to their company. He also expressed concern over the conduct of laboratory courses and projects during lockdown period.
- V N Sanagoudar from the School explained the measures adopted by the School about completing all the practical work with extensive engagement in the first 3-4 weeks of commencement of the semester seeing the developing COVID reports and anticipating the worsening situation leading to lockdown.

Resolution: The School to make continued efforts that enhance student performance potential for more and better placements.

Agenda 6	To review the Outcome Based Education (OBE) framework
	The current OBE framework being practiced by the School was in alignment with the AICTE Examination Reforms Policy document. The Program Educational Objectives, Program Outcomes (PO) along with Program Specific Outcomes (PSO) formed the important components of the framework. The PEOs and PSOs were specific to the School while POs were generic in nature. Annexure 5 listed the PEOs, POs and PSOs and Annexure 6 is the Exam Reforms Policy document.

Action Requested: The Board of Studies was requested to review the Outcome Based Education (OBE) framework.

Discussions: The Chairman briefed the OBE framework adopted by the School and the need for review of the PEOs and PSOs for the continued effective implementation.

- S B Burli from the School explained the implementation strategy and assessment procedure to ensure the attainment of expected competencies among students in the form of Program Outcomes. He also shared the statistics of previous year attainments both by direct and indirect means.
- Murigendrappa, NITK shared his experiences of OBE being practiced at their institute and the challenges there of in implementation.

Resolution: Resolved to approve the current OBE framework for continued implementation.

Agenda 7	To review the Online learning Initiatives during lockdown due to COVID-19
	The School had adopted the 'KLE Tech. Bichronous Blended Learning Model' to effectively engage students during the pandemic situation. It included the Asynchronous videos recorded by the respective course instructors and Synchronous online lectures to deliver the course content to reach the students. The school had dedicated state-of-the-art light-board studio facility to develop online Asynchronous course material. MS Teams platform is being used to deliver Synchronous course content. The blend of these modes had made it possible for effective delivery of the courses.
	The overall student satisfaction for blended learning had been overwhelming. The Laboratory courses were conducted in offline mode prior to lockdown imposed in view of the pandemic. The Project courses had also been engaged effectively through online mode taking up periodic reviews and a rubric based assessment. In view of lock down, online proctored In-semester Assessment had been adopted through Microsoft Teams and exam.net platforms.
	The School had adequate resources and well-designed methodology to conduct End-semester exams judiciously with thorough assessment of student performance in all courses.
	Refer to Annexure 7 for the student feedback and analysis on online learning.

Action Requested: The Board of Studies was requested to review the online learning initiatives adopted by the School during pandemic and approve the same.

Discussions: The Chairman shared the initiatives by the School in ensuring the uninterrupted teaching-learning process during the uncertain times. While presenting the adoption of Bichronous Learning Approach and the associated feedback from students on its efficacy, he said, were encouraging.

- S Gopalkrishnan and Anand Ramani appreciated the student engagement through Synchronous and Asynchronous mode (Bichronous) of learning and the efforts of faculty members to quickly adapting to the demanding situation in order to keep the student learning intact.

Resolution: Resolved to approve the online learning initiatives adopted by the School.

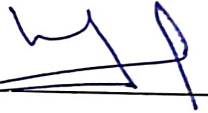| Agenda 8	Any other subject with the permission of the Chair
	There was no other subject matter for discussion.

The Chairman thanked the board members for their active participation in the meeting.

KLE Technological University, Hubballi –580031
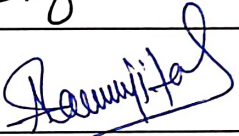## School of Management Studies& Research

Board of Studies Meeting

Date: 25-05-2022

The meeting of the Board of Studies, School of Management Studies & Research was held on 25th May 2022 at 10.30 am. Members Present:

Sl. No.	Name of the member	Role	Sign
1	Prof. Jagdish Bapat Director, SMSR KLE Tech. University, Hubballi.	Chairperson	*signature*
2	Prof. Gurubasavarya Hiremath Professor KLE Tech. University, Hubballi.	Members	*signature*
3	Prof. Manjunath Hegde Director, Maxgrid Securicore, Bangalore.		*signature*
4	Prof. Deepankar Sinha, Associate professor, Indian Institute of Foreign Trade, Kolkatta		ABSENT
5	Prof. K. Kiran Kumar Associate Professor, Indian Institute of Management Indore.		PRESENT ONLINE
6	Prof. Parag Patel Associate Dean, Undergraduate Programmes, Amrut Mody School of Management (AMSOM), Ahmedabad University		PRESENT ONLINE
7	Mr. Omprakash Subbarao Senior Vice President, SONATA Software, Banglore.		ABSENT
8	Mr. Shiv Turmari Co-Founder & Director, ANALOGSEMI, Bangalore		PRESENT ONLINE
9	Prof. SagarPatil Associate Professor KLE Tech. University, Hubballi		*signature*
10	Prof. Prayag Gokhale		

KLE Technological University, Hubballi –580031
School of Management Studies& Research

Sl. No.	Name of the member	Role	Sign
	Department of MBA, KLE's Dr. M. S. Sheshagiri College of Engg. and Technology, Belagavi.		
11	Dr. Sanjay Hanji Department of MBA, KLE's Dr. M. S. Sheshagiri College of Engg. and Technology, Belagavi.		
12	Dr. Shashidar Mahantshetti, SMSR, KLETU, Vidyanagar Hubballi.		
13	Prof. Ranjeeta Amminbhavi SMSR, KLETU, Vidyanagar Hubballi.		
14	Mr. Gurupasad C Hogadi, Assistant Administrative Officer, Dharwad city transport division, and additional in-charge BRTS, Hubballi.	Alumni Member	
15	Ms. Akshata Bhat Student of II Year, SMSR, KLETU, Vidyanagar, Hubballi.	Student Member	

Agenda 3: Ratifications

Discussion   : Chairman tabled the expected ratifications and explained the necessity

Resolution   : BoS admitted the below mentioned ratifications and approved the same

MBA 2021-23 Batch:

1st Semester:

- The course Technology: An Enabler course evaluation has been converted to In semester Assessment only. Codes as per below are changed:

Old codes	New codes	Course
20MBAP702	20MBAP703	Business Communication
20MBAP703	20MBAP704	Managerial Communication and Aptitude
20MBAP704	20MBAP705	Industry Experience- Phase II

- Social Entrepreneurship - Phase I , II, III and IV are converted as Entrepreneurship Phase I, II, III and IV respectively.
- Entrepreneurship Project Phase-I and Phase II are removed.
- In Project Phase – II Artificial Intelligence and Machine learning basics is introduced.

BBA Ratification

- Changes in the structure are accommodated according to New Education Policy-2020.
- Business English in introduced in replacement of Kannada language in second semester.
- Project management, Digital marketing-I, Digital marketing-II, Web design are replaced with Balake Kannada, Adalitha Kannada and English in 2021-25.
- Balake Kannada- III (21MBAP203) and Adalitha Kannada – III (21MBAP204) course codes are now allocated to Web Design and Digital Marketing-II

Discussions:

BoS members reviewed the program scheme and contents of courses for the academic year 2022-23. Members reviewed the content of each course and sought for clarifications in some of the courses. Internal members provided clarifications. External members suggested modifications as given in agenda 4, 5 & 6.

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Agenda 4: Finalization of the scheme for the academic program 2022-24 and the syllabus of 1st and 2nd Semester.

BoS members approved the program scheme and contents of courses with following modifications.

Suggestions	Considered	Not Considered	Remarks
Entrepreneurship is common in all universities, having Social entrepreneurship will be unique to SMSR and more value adding	√		Social Entrepreneurship Phase- I and II are introduced in 3rd and 4th semesters.
Bring Marketing to Semester I	√		Marketing Management course is shifted to 1st semester.
Move ED to Semester 2 or higher semester	√		Entrepreneurship is shifted to 2nd semester.
Don't make climate change & sustainability a compulsory course.	√		LTPS changed to 0-1-0 from 2-0-0. Also, title has been changed to Climate change and sustainability management. Only ISA is adopted.
Data base management using Excel	√		Considered in Business Analytics course.
Accounting for Managers LTPS to 2-1-0-0	√		Considered and Accounting for Managers course LTPS framed as 2-1-0-0

Teachers Feedback:

i. Business Research methods

The existing syllabus was not accommodative to host intense research methodology. In order to intensify and accommodate quantitative and qualitative methodologies, the restructuring was necessary and hence the courses were bifurcated and offered in two semesters. Basically in first semester focus was towards awareness of research methodologies. This would help the students in better understanding of research methodologies in the very first semester of MBA.

ii. Applied Business Research

In order to intensify the research, the applications of research concepts were intensified by offering Applied Business Research course in the second semester. The tools and techniques were added to ensure the application of the concepts. Data Visualization, Data Analysis, Multi-criteria Decision Modeling & Bench Marking will be explored by the student that really adds value.

iii. Analytics for Business

The analytics has been an area of choice and demand to students. The same was absent and was earlier offered only to specialized course under Operations specialization. In order to offer to all, the same has been modified and introduced in the first semester. The students would get an insight of the analytics in various aspects like Retail Analytics, Marketing Analytics, Financial Analytics, Healthcare Analytics, and Supply Chain Analytics. This would also help students in better placements.

Agenda 5: Finalization of the syllabus of 3rd and 4th Semester for the academic program 2021-23

BoS members approved the program structure and course content with following modifications.

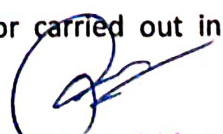| Suggestions	Considered	Not Considered	Remarks
Legal Aspects can be brought in the 3rd semester		√	Due to non-aligning with structural modifications retained in 4th semester
Merging Quality management and SCM course	√		Merged with TQM. And offered as core course in 4th semester

Teachers Feedback:

i. Retail Management

Retail management has been a great learning for the students of marketing. It is also observed that majority of the students opt for marketing specialization and also placed in this area. Hence, it necessitates for modification and include concepts like Customer buying behavior, Retail market strategy, Customer relationship management , Market Basket analytics, RFM analysis, Optimizing Direct mail Campaigns, Scan *Pro Model. This will help the students to understand Retail Management better and improve placements further.

ii. Behavioural Finance- II

The course has a great importance and acts as a support to existing course Security Analysis and Portfolio Management. The course instructor observed scope to offer a new course that establishes a relation between expected behavior and actual behavior of the FI investors. During his research, course instructor obtained insights of behavioral finance and hence the course is offered. The course will provide insights on rationale behavior of investors and actual behavior carried out in the

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market. This will make students to understand FI investor's behavior towards investment activities, their preferences, and biases towards decision making.

iii. Emerging Trends in HR Practices

The current trends in human resource management today, demands that HR should treat people as resources and integrate their aspirations with corporate goals. At sometimes, aligning individual goals to corporate goal has been witnessed difficult. Also, new aspects post Covid situation has coined new terms like Hybrid work model, HR in Gig economy, HR Accounting, HRD Audit, Digitalization of HR, and Artificial Intelligence in HR. Hence to deal with these it was essential to introduce the course.

iv. HR Analytics

The analytics in the HR field has been an area most preferred by many HR executives. The companies do look for analytical skills in the field of HR with special emphasis on quick resolving and compilation of data. The course is introduced for HR specialization oriented students in the second year. This would certainly improve the employment in the HR field.

v. Data Science for Managers

Data Science is an important course that is offered by the majority of the universities. The innovative and data driven companies are looking out for the manpower that is trained with data science technology. Hence the course is offered as a specialization under Operations stream. It is expected that data trained students would help the companies to leverage data driven informed decisions. The skilled students would also get good placement opportunities.

Employer Feedback:

i. Data Science for Managers:

The experts from the industry suggested including data science for the final year students instead of business analytics. This would help the students to understand and gain expertise in the specialized area that is less explored. This would help in improving the employability of the students too.

ii. Analytics for Business:

The industry experts opined that, basics of business analytics can be introduced in place of technology enabler. This would not only help the students in understanding data visualization and analysis concepts but also more employable in all relevant fields.

iii. Sales management

The experts from the sales experience of over a decade opined that, it is good to include CRM discipline followed by data quality, prospecting, lead generation methods or channels. This would help the students to build capacity in the respective sales domain. These are also some polished skills that are looked out by the employers.

Agenda 6: BBA programme

Finalization of the scheme for the academic programme 2022-26 and the syllabus of 1st and 2nd Semester

The broad frame work of the programme scheme and contents of courses of I year was tabled and members approved the scheme and syllabus with following modifications.

Suggestions	Considered	Not Considered	Remarks
Business English course name doesn't look professional. Suggested to change the nomenclature.	√		Changed to Business Communication

Agenda 7: BBA programme
Finalization of the scheme for the academic programme 2021-25 and the syllabus of 3rd and 4th Semester

BoS members approved the program structure and course content with following modifications.

Suggestions	Considered	Not Considered	Remarks
Include research methodology in 3rd semester	√		Research methodology is added
Include Digital Marketing in 3rd semester	√		Considered. Added
Research methodology can be upgraded in 7th Semester	√		Advanced Research Methodology is introduced.

Teachers Feedback:

i. Digital marketing

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Digital marketing is one such course that helps you to connect to the customers even during pandemic times. Hence, studying such course would make student counter the unforeseen circumstances. The course provides ample ample knowledge of multiple online tools and platforms. The growing demand for digital markets has also been witnessed in the industry. Hence the faculty found the need to offer the course in the second year for the students of BBA.

ii. Research methodology

The existing syllabus was not offering research methodology. In order to familiarize quantitative and qualitative methodologies, the offering was necessary and hence the course is offered in third semester. Basically in second year focus was necessary towards awareness of research methodologies titles like Research Process & Research Designs, Data Collection Methods &Measurement, Estimation and Hypothesis testing, and Report Writing are introduced. This would help the students in better understanding of research methodologies in the very first semester of MBA.

The suggestions made were agreed by the members. The BoS has empowered the chairman to make necessary changes.