RV College of Engineering®

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Technological
University, Belagavi

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New Delhi

RV College of Engineering, Bangalore

DEPARTMENT OF ELECTRONICS AND INSTRUMENTATION ENGINEERING

BoS CONTENT SHEET

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Department: Electronics & Instrumentation Engineering

Programme: B.E. (Electronics & Instrumentation Engineering) & M.Tech in Bio-Medical Signal Processing & Instrumentation

The following are the new courses added in the curricula in the respective curricular revisions made in 2018, 2021 and 2022 schemes. Curricular revisions were discussed thoroughly at the respective Board of Studies meetings. The new courses added are reflected in the revised curricula with the course codes.

Sl. No.	Title of the new course added	Course code	Scheme in which the new course is added
1.	Data structure using C	18EI35	2018
2.	Sensors & Actuators	18EI43	2018
3.	Micro Processor & Microcontroller	18EI44	2018
4.	Design Thinking Lab	18EI47	2018
5.	Virtual Instrumentation & Simulation Techniques	18EI55	2018
6.	Programming in Java	18EC5A1	2018
7.	Analog Communication	18EI5A2	2018
8.	Artificial Intelligence: Search Methods for Problem Solving	18IS5A3	2018
9.	Computer Architecture and Organization	18TE5A4	2018
10.	Minor Project	18EI64	2018
11.	Internship	18EI74	2018
12.	Advanced Software Tools for Instrumentation and controls	18EI7F3	2018
13.	IoT based Agricultural Automation	18EI7F4	2018
14.	Mechanical Measurement Systems	21EI4A1	2021
15.	Mechatronics	21EI4A2	2021
16.	Introduction to Operations Research	21EI4A3	2021
17.	Electronics Equipment Integration and Prototype Building	21EI4A4	2021
18.	Linear Algebra, Integral Transforms and Fourier Series	21MA31B	2021
19.	Statistics and Probability for Data Science	21MA41	2021
20.	Microcontroller & Programming	21EI43	2021
21.	Signals & Systems	21EC44	2021
22.	Mathematics For Bio Medical Signal Processing	18MBS11	2018
23.	Medical Physiology & Instrumentation	18MBS12	2018
24.	Embedded Controller	18MBS1A1	2018

25.	Wireless Technologies for medical Applications	18MBS1A2	2018
26.	OOPS with Java	18MBS1B1	2018
27.	Python Programming	18MBS1B2	2018
28.	Bio Medical Sensors & Data Acquisition	18MBS22	2018
29.	Machine Learning	18MC2C2	2018
30.	Rehabilitation Engineering	18MBS3E2	2018
31.	Ergonomics	18MBS3E3	2018

Bos-CHAIRMAN
(Electronics & Instrumentation Engineering)

Dept. of Electronics
R.V. College of Engineering
Bangalore-560 059

DEAN ACADEMICS
DEAN ACADEMICS
R.V. College of Engineering
Bengaluru - 560 059

PRINCIPAL

PRINCIPAL
RV COLLEGE OF ENGINEERING
BENGALURU - 560 059

# DEPARTMENT OF ELECTRONICS & INSTRUMENTATION ENGINEERING
## R. V. COLLEGE OF ENGINEERING
### BENGALURU – 560 059

RVE / E&IE (IT) /   / 2018 – 19

13/8/2018

Circular

The Department is willing to utilize your expertise in formulation of th Scheme and syllabus for PG program of autonomous scheme in Bio-Medical Signal Processing & Instrumentation, RVCE, Bengaluru. In connection with this, BoS meeting is convened on 16th (Thursday) of August 2018 at 10.30 AM. I am happy to invite you as the expert internal BoS member from the department. Kindly make it convenient to attend the same.
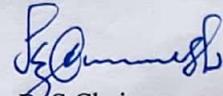
13/8/2018

BoS Chairman

Dr. Renu Madhavi Associate Professor & HoD
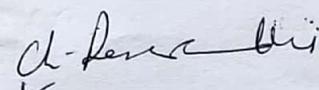
Dr. Padmja K V , Professor
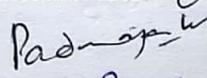
Dr. Prasanna Kumar S C, Professor   14/8/18
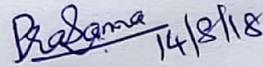
Dr. Anand Jatti ,Associate Professor

Dr. B G Sudarshan ,Associate Professor

Prof. Harsha, Assistant Professor

RVCE email
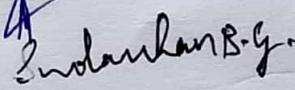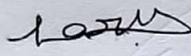
Harsha Mr. <harsha@rvce.edu.in>

Fwd: Dr.KBR: Invitation for BoS Meeting
1 message

Renu Madhavi C.H. <renumadhavi@rvce.edu.in>   Mon, Aug 13, 2018 at 12:35 PM
To: harsha <harsha@rvce.edu.in>

print and file
---------- Forwarded message ----------
From: **Ramesh K.B.** <rameshkb@rvce.edu.in>
Date: Mon, Aug 13, 2018 at 10:20 AM
Subject: Dr.KBR: Invitation for BoS Meeting
To: meenakshi_mbhat@yahoo.com
Cc: "Renu Madhavi C.H." <renumadhavi@rvce.edu.in>, "Padmaja K.V." <padmajakv@rvce.edu.in>

Respected Madam,

Greetings!

The Department is willing to utilize your expertise in formulation of the Scheme and syllabus for PG program of autonomous scheme in Bio-Medical Signal Processing & Instrumentation, RVCE, Bengaluru. In connection with this,BoS meeting is convened on 16th (Thursday) of August 2018. I am happy to invite you as the expert from academic. Kindly make it convenient to attend the same. In anticipation of your positive reply as early as possible.

With regards,

Dr.K.B.Ramesh,
Associate Professor & BoS Chairman,
Dept of Electronics & Instrumentation Engineering & PG
RVCE,Bengaluru-560059.

Mobile:9342522399.

--

Dr. C H Renu Madhavi
Associate Professor
Electronics & Instrumentation Engineering
R V College of Engineering
Bangalore

2

PG BoS MoM (Minutes of Meeting)

The HoD welcomed every one for the meeting.

1. The revised schemes and syllabus of 88 credits for 2018-19, M.Tech (BMSP&IT) was discussed.
2. PG Associate Dean briefs the structure of PG syllabus new scheme-2018.
3. External BoS member suggested to add topics on Tools related to Bio-Medical Signal Processing, Healthcare and safety measurement for Audit course.
4. The committee decided to rename Mathematical concepts for Bio Medical Signals as Mathematics for Bio Medical Signal Processing
5. The members also suggested reframing the syllabus of Mathematics for Bio Medical Signal Processing according to following criteria.
   i.   Unit 1 & Unit 2 should include fundamental of Signal Processing
   ii. Unit 3, Unit 4 & Unit 5 should include applications of Bio medical Signal processing.
6. The committee emphasised to add Nano technology syllabus in Bio MEMS and NEMS course.
7. Committee member suggested to add latest reprinted text books as reference for all courses.
8. Suggestion was given regarding reframing of CLO and CO and to give moreimportance on CO - PO mapping and CO-PSO Mapping.
9. Committee felt swapping of Bio Medical Sensors and Data Acquisition course of 3rd semester to Medical Imaging Techniques of 2nd semester.
10. BoS Members suggested for flexibility at the department level for Tutorial Topics of different courses. Also suggested to give tutorial for Elective-2. And give extra Lecture hour for Medical Physiology & Instrumentation and Bio MEMS and NEMS instead of tutorials.
11. External BoS member suggested renaming the Digital Image Processing course as Medical Image Processing. And also add advance topics of medical image applications in the syllabus.
12. BoS Members also suggested renaming Bioinformatics to Bioinformatics and Programming.
13. As per alumni feedback, emphasis was given on programming in the syllabus. Python programming was offered as an elective in I semester PG Curriculum.
14. The draft scheme for all the semester (core and electives) were discussed and finalized.
15. BoS Members suggested for a compulsory hospital visit for Medical Imaging and Techniques course.
16. BoS members suggested adding some of the topics like ZigBee, Bluetooth, and wireless protocol for Wireless Technology for Medical Application course.
17. Finally, chairman thanked for everyone for valuable feedback and advice.

Chairman
BoS, Dept of E& IE.

Copy To,

1. Dr.MeenakshiBhat Professor &HoD E&IE Dr. AIT, Bengaluru
2. Dr.Padmaja K V, Professor & Associate Dean
3. Dr. Prasanna Kumar S C, Professor
4. Dr. RenuMadhavi, Associate Professor
5. Dr. AnandJatti, Associate Professor
6. Dr. B G Sudarshan, Associate Professor
7. Prof. Harsha, Assistant Professor
8. Prof. DeepashreeDevraj, Assistant Professor

The detailed suggestions given by BoS for the following courses:

The BoS approved the following **new courses in** I to III semester PG BMSP & IT and suggested few modifications in the syllabus contents.

SI.No.	Course Title	Course Code
1	Mathematics for Bio Medical Signal Processing	18MBS11
2	Medical Physiology & Instrumentation	18MBS12
3	Embedded Controller	18MBS1A1
4	Wireless Technologies for medical applications	18MBS1A2
5	OOPS with Java	18MBS1B1
6	Python programming	18MBS1B2
7	Bio Medical sensor and data acquisitio	18MBS22
8	Machine learning	18MCS2C2
9	Rehabilitation Engineering	18MBS3E2
10	Ergonomics	18MBS3E3

Mathematics for Bio Medical Signal Processing:

1. Unit 1 Basic Introduction
2. Unit 2 FIR, IIR Filters
3. Unit 3 ECG, Power Spectrum Topics
4. Unit 4 & 5 Applications
5. Laboratory Experiments to be added.
6. Tutorial Syllabus has to added separately.
7. Adaptive Filtering should be included in Unit-5
Note: Informed to discuss with Prof. KBR &Prof. BGS.

Medical Image Processing

1. Medical Image Processing Application Syllabus has to be introduced.
2. Latest Text books to be introduced.
3. Laboratory experiments should include analysis of real time images acquired from the Hospitals.
3. Syllabus has to re-frame entirely and should be discuss with industry experts.

Bio MEMS& NEMS
1. NEMS topics to be added.
2. Application parts to be added in the syllabus.

Embedded Controller
Inputs already given to course coordinator directly

Bioinformatics & Application

1. Big data analytics with Hospital data has to be added
2. Syllabus must focus on programming

Bio Medical Sensors& Data Acquisition

1. Syllabus has to reframed, and asked to avoid repeated topics in other courses.
2. More focus should be on design and latest bio medical sensors.

Bio statics, Laser in Medicine & Bio Mechanics
1. Asked to add latest and reprinted reference books
2. Mapping has to be re-done.
3. Asked to discuss with subject expert.

IoT for Healthcare, Wireless Technology for medical applications
Syllabus has to be discussed in details with all experts available in the department and college.

Machine Learning
Asked to discuss cluster group expert for finalization of syllabus.

OOPS in Java

Syllabus has to be given and should discuss with experts from other dept.

Global Elective:

1. The syllabus must be general for all cluster group students.
2. Asked to introduce real time application of bio medical sensor design

Note for all:
1. CLO, COs are be rewritten and to refer Blooms taxonomy.
2. CO, PO,PSO Mapping has to be recheck.
3. Latest text books& reference books to be added.

The new and revised syllabus with all required modification has to be submitted.

M. Tech. Scheme for Academic Years 2018 & 2019

	Course Code	Course Title	BoS	CREDIT ALLOCATION				Total Credits
				L	**T**	**P**		
1	18XXX 11	Mathematics for Bio Medical Signals	EI	3	0	1		4
2	18XXX 12	Medical Physiology & Instrumentation + Lab	EI	4	0	1		5
3	18XXX 13	Bio MEMS& NEMS +Lab	EI	4	0	1		5
4	18XXX 14X	Elective -1	EI	4	0	0		4
5	18XXX15X	Elective - 2	EI	3	1	0		4

Note: The table above is headed "FIRST SEMESTER".

8	18XXX18X	Audit Course -1*		0	0	0		0
		Total						**22**

* 2 Hrs of teaching

	Course Code	Course Title	BoS	CREDIT ALLOCATION				Total Credits
				L	T	P		
1	18XXX 21	Medical Image Processing +Lab	EI	4	0	1		5
2	18XXX 22	Bio Medical Sensors & Data Acquisition	EI	3	1	0		4
3	18XXX 23	Research Methodology	EI	3	0	0		3
4	18XXX24X	Elective -3	EI	4	0	0		4
5	18XXX25X	Elective - 4	EI	4	0	0		4
6	18XXX26X	Elective-5 (Global)	EI	3	0	0		3
7	18 XXX29	Minor Project	EI	0	0	2		2
		Total						**25**

*(Header for above table: **SECOND SEMESTER**)*

	Course Code	Course Title	BoS	CREDIT ALLOCATION				Total Credits
				L	T	P		
1	18XXX31	Medical Imaging and Techniques	EI	4	1	0		5
2	18XXX32X	Elective -6	EI	4	0	0		4
4	18XXX34	Internship	EI	0	0	5		5
5	18XXX35	Dissertation Phase I	EI	0	0	5		5
		Total						**19**

*(Header for above table: **THIRD SEMESTER**)*

	Course Code	Course Title	BoS	CREDIT ALLOCATION				Total Credits
				L	T	P	S	
1	18XXX41	Dissertation Phase II	EI	0	0	20	0	20
2	18XXX42	Technical Seminar	EI	**0**	**0**	2	0	2
		Total						**22**

*(Header for above table: **FOURTH SEMESTER**)*

	Option 1	Option 2	Option 3
Elective-1	Embedded Controller	Wireless Technology for medical Applications	Healthcare and Hospital Management
Elective-2	OOPS with Java	Python Programming	Bioinformatics& programming
Elective-3	Machine Learning	Biostatics	Biomechanics
Elective-4	Lasers in medicine	IoT for Healthcare	Basics of orthopaedics, Medicine& Ethics
Elective-5	Bio Medical Sensors & Instrumentation		
Elective-6	Bio Materials & Artificial Organs	Rehabilitation Engineering	Ergnomics

RV COLLEGE OF ENGINEERING
(An Autonomous Institute under VTU)
DEPARTMENT OF ELECTRONICS & INSTRUMENTATION ENGINEERING

19th BoS Meeting

(Members Present on 16.8.2018)

Sl. No.	NAME	Designation	Institution	Signature
1.	Dr. K.B.Ramesh	Associate Professor and Head,	Dept of E &IE, R.V.C.E.	
2.	Dr. Padmaja K.V	Professor	Dept of E &IE, R.V.C.E.	
3.	Dr.Prasanna Kumar S.C.,	Professor	Dept of E &IE, R.V.C.E.	—AB—
4.	Prof .S.Venkatesh	Associate Professor,	Dept of E &IE, R.V.C.E.	
5.	Dr.C.H.Renumadhavi,	Associate Professor,	Dept of E &IE, R.V.C.E.	
6.	Dr.Anand Jatti,	Associate Professor,	Dept of E &IE, R.V.C.E.	—AB
7.	Prof.Deepashree Devaraj,	Assistant Professor,	Dept of E &IE, R.V.C.E.	
8.	Dr. M.Meenakshi	Professor	Professor and Head, Dept of E &IE, Dr.AIT,	
9.	Dr. Mallikarjun S Holi,	Professor	Professor and Head,Dept of E &IE, UBDTCE, Davanagere	—AB—
10.	Mr. Sanjay Venugopal,	Senior Technologist,	Yokogawa IA Technologies India Pvt.Ltd., Bengaluru	—AB—
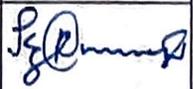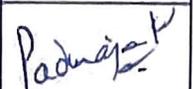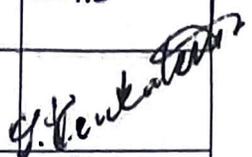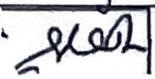
HoD

Professor & Head
Dept of Electronics ~~~~~~~~~~~ tion Engg
R.V. College of E~~~~~~~~~ring
Bangalore-~~~ ~~~

8

RV College
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by NAAC, Bengaluru

Action taken report for 19th BoS Meeting

SI.NO.	Agenda	BoS Members Comment	Action Report
1	PG 2018 BoS	For the course **Mathematics for Bio Medical Signal Processing,** BoS members suggested the following: • Unit I & Unit 2 should include fundamentals of Signal Processing • Unit 3, Unit 4 & Unit 5 should Include application of Bio medical Signal processing.	Introduction to discrete time analysis, FIR and IIR filter design, Frequency and Time series analysis of ECG, EEE, PPG included in the syllabus as different Units.
2.		**External BoS Members** suggested to rename **Digital Image Processing course as Medical Image Processing.** And add advanced topics of medical image applications in the syllabus	The course Digital Image Processing is renamed to Medical Image Processing in II semester PG syllabus. Application of Bio Medical Image Processing is included in Unit-V.
3.		BoS Members suggested for a compulsory hospital visit for medical imaging and techniques.	Few Hospitals Visit will be arranged Like NIMHANS, St. Johns Medical College Hospital & Jayadeva Institute of Cardiovascular Sciences and Research

BoS Chairperson

Professor & Head
Dept. of Electronics & Instrumentation Engg
R. V. College of Engineering

R. V. COLLEGE OF ENGINEERING

(Autonomous Institution Affiliated to Visvesvaraya Technological University, Belgaum)
Approved by All India Council for Technical Education, New Delhi

Date: 09/04/2019

Dear Sir/ Madam,

The E&IE Department, RVCE, invites your good self for a "BoS Meeting", scheduled on 27th April, 2019, Saturday, at 10.00 A.M, in the department.

Agenda:

1. Suggestions & approval of the new 2018 – B.E. 3 rd to 8th semester schemes for Electronics & Instrumentation Engineering branch.

2. Suggestions & approval of the detailed syllabus of 3rd & 4th semester M. Tech. (Bio-Medical Signal Processing & Instrumentation Engg.)

Venue: EIE Dept. Library

Time: 10.00 AM to 3.00 PM

You are cordially invited.

Thanking you,

Ch. Renumadhavi
Dr. Renu Madhavi CH   10/4/19
Professor & Head
Dept. of Electronics & Instrumentation Engg.
R.V College of Engineering
Bangalore-560 059

Dr. CH. Renumadhavi M.Tech., Ph.D, Associate Professor & HoD, Electronics & Instrumentation Engineering Department, R V Vidyanikethan Post, Mysuru Road, Bengaluru-560059
Phone: +91-080-67178044   Fax: +91-80-28600337   email: renumadhavi@rvce.edu.in

R. V. COLLEGE OF ENGINEERING

(Autonomous Institution Affiliated to Visvesvaraya Technological University, Belgaum)
Approved by All India Council for Technical Education, New Delhi

Date: 10/04/2019

To,

Mr. Srinidhi. N

Sr. Engineer,

National Instruments, Bangalore.

Mobile: 9740322699

Dear Sir/Madam,

The department deems it an honor to have you as one of the prestigious members of **"Board of Studies"** of the Electronics & Instrumentation Engineering branch of this Institution, for the coming academic years, through providing your valuable suggestions and approve the updated syllabi of both B. E. (**Electronics & Instrumentation Engineering**) & M.Tech (**Bio- Medical Signal Processing & Instrumentation**) courses.

We would be highly grateful for your valuable suggestions and ideas to upgrade the above mentioned syllabi.

Hope you are accepting this request and be part of our Academic Process.

Thanking you.

Dr. Renumadhavi CH. 10/4/19
Professor & Head
Dept. of Electronics & Instrumentation Eng
R.V. College of Engineering
Bangalore-560 059

Dr. CH. Renumadhavi M.Tech., Ph.D, Associate Professor & HoD, Electronics & Instrumentation Engineering Department, R V Vidyanikethan Post, Mysuru Road, Bengaluru-560059
Phone: +91-080-67178044   Fax: +91-80-28600337   email: renumadhavi@rvce.edu.in

Date: 10/04/2019

To,

Dr. G Shiv Prakash

Professor

Dept of E & IE, M.C.E.Hasan-5730202

Phone:9448742111

Email:gs@mcehassan.ac.in in

Dear Sir/Madam,

The department deems it an honor to have you as one of the prestigious members of **"Board of Studies"** of the Electronics & Instrumentation Engineering branch of this Institution, for the coming academic years, through providing your valuable suggestions and approve the updated syllabi of both B. E. (**Electronics & Instrumentation Engineering**) & M.Tech (**Bio- Medical Signal Processing & Instrumentation**) courses.

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Thanking you.

10/4/19

Dr. Renumadhavi CH.
Professor & Head
Dept. of Electronics & Instrumentation Engg.
R.V. College of Engineering
Bangalore-560 059

Dr. CH. Renumadhavi M.Tech., Ph.D, Associate Professor & HoD, Electronics & Instrumentation Engineering Department, R V Vidyanikethan Post, Mysuru Road, Bengaluru-560059
Phone: +91-080-67178044   Fax: +91-80-28600337   email: renumadhavi@rvce.edu.in

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R. V. COLLEGE OF ENGINEERING

(Autonomous Institution Affiliated to Visvesvaraya Technological University, Belgaum)
Approved by All India Council for Technical Education, New Delhi

Date: 10/04/2019

To,

Dr. Mahendra Prashanth K V

Professor & HoD

Dept of E& C SJB Institute of Technology

Phone: 9739099707

Email: kvmprashanth@sjbit.edu.in

Dear Sir/Madam,

The department deems it an honor to have you as one of the prestigious members of **"Board of Studies"** of the Electronics & Instrumentation Engineering branch of this Institution, for the coming academic years, through providing your valuable suggestions and approve the updated syllabi of both B. E. (**Electronics & Instrumentation Engineering**) & M.Tech (**Bio- Medical Signal Processing & Instrumentation**) courses.

We would be highly grateful for your valuable suggestions and ideas to upgrade the above mentioned syllabi.

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Thanking you.

Dr. Renumadhavi CH. 10/4/19

Professor & Head

Dept. of Electronics & Instrumentation Engg

R.V. College of Engineering

Bangalore-560 059

Dr. CH. Renumadhavi M.Tech., Ph.D, Associate Professor & HoD, Electronics & Instrumentation Engineering Department, R V Vidyanikethan Post, Mysuru Road, Bengaluru-560059
Phone: +91-080-67178044   Fax: +91-80-28600337   email: renumadhavi@rvce.edu.in

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Rashtreeya Sikshana Samithi Trust

R. V. COLLEGE OF ENGINEERING

(Autonomous Institution Affiliated to Visvesvaraya Technological University, Belgaum)
Approved by All India Council for Technical Education, New Delhi

Date: 09/04/2019

Dear Sir/ Madam,

The E&IE Department, RVCE, invites your good self for a "BoS Meeting", scheduled on 27th April, 2019, Saturday, at 10.00 A.M, in the department.

Agenda:

1. Suggestions & approval of the new 2018 – B.E. 3 rd to 8th semester schemes for Electronics & Instrumentation Engineering branch.

2. Suggestions & approval of the detailed syllabus of 3rd & 4th semester M. Tech. (Bio-Medical Signal Processing & Instrumentation Engg.)

Venue: EIE Dept. Library
Time: 10.00 AM to 3.00 PM

You are cordially invited.

Thanking you,

Dr. Renu Madhavi CH   10/4/19

Professor & Head
Dept. of Electronics & Instrumentation Engg
R.V. College of Engineering
Bangalore-560 059

Dr. CH. Renumadhavi M.Tech., Ph.D, Associate Professor & HoD, Electronics & Instrumentation Engineering Department, R V Vidyanikethan Post, Mysuru Road, Bengaluru-560059
Phone: +91-080-67178044   Fax: +91-80-28600337   email: renumadhavi@rvce.edu.in

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R. V. COLLEGE OF ENGINEERING

(Autonomous Institution Affiliated to Visvesvaraya Technological University, Belgaum)
Approved by All India Council for Technical Education, New Delhi

Date: 10/04/2019

To,

Mr. Ramesh Babu

Senior Manager

Jindal Steel Works, Energy Ltd.,

Toranagallu, Bellary 583 275

Phone num:9448173297

Dear Sir/Madam,

The department deems it an honor to have you as one of the prestigious members of **"Board of Studies"** of the Electronics & Instrumentation Engineering branch of this Institution, for the coming academic years, through providing your valuable suggestions and approve the updated syllabi of both B. E. (**Electronics & Instrumentation Engineering**) & M.Tech (**Bio- Medical Signal Processing & Instrumentation**) courses.

We would be highly grateful for your valuable suggestions and ideas to upgrade the above mentioned syllabi.

Hope you are accepting this request and be part of our Academic Process.

Thanking you.

Dr. Renumadhavi CH. 10/4/19

Professor & Head

Dept. of Electronics & Instrumentation Eng

R.V. College of Engineering

Bangalore-560 059

Dr. CH. Renumadhavi M.Tech., Ph.D, Associate Professor & HoD, Electronics & Instrumentation Engineering Department, R V Vidyanikethan Post, Mysuru Road, Bengaluru-560059
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**RV College
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Technological
University, Belagavi

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New Delhi, Accredited
by NAAC, Bengaluru

Date: 27/04/2019

20th BoS Meeting - Minutes

The BoS Chairperson, Dr. RenuMadhavi, welcomed the BOS Members for the 20th BOS meeting, and introduced all the new BoS members.

1. The revised schemes of 3rd to 8th sem B.E. (E& IE) and 3rd and 4th semester M.Tech (BMSP&I) syllabus were discussed. Also, 3rd and 4th semester new syllabus of E & IE B.E. program was discussed.

2. The BoS Chairman briefed the following to the BOS members present – for their approval :
   - Structure of the new B. E. (Autonomous) scheme-2018 - Total credits to be limited to 156 credits for 3rd to 8th sem B.E. program.
   - Presented the 3rd - 8th Autonomous scheme - 2018.
   - It is mandatory to opt at least one elective Course from NPTEL/Swayam group of appropriate elective courses - preferably during the 5th semester B.E.
   - For the newly proposed BE (Hon.) degree (5 years duration), extra 20 credits to be earned by the interested students - by completing NPTEL Courses.
   - The new courses namely, Data structure using C, Sensors and Actuators Design Thinking Lab and, Microprocessor & Microcontroller are introduced in III and IV semester 2018 scheme
   - A few courses of 3rd and 4th semester are grouped under Common Departmental courses with common syllabus.
   - 'Analysis of Digital system Design' (3rd sem) , 'Signals and Systems'(4th sem), & 'Microprocessor and Microcontrollers'(4th sem) are common courses for EEE, ECE, and EIE. 'Analog Electronics' (3rd sem) and 'Control systems' (4th sem) are common to both EEE &EIE branches.

3. BoS members recommended only practical exam for "Virtual Instrumentation & Simulation" course as new course for 5th semester, since it involves graphical programming & simulation exercises on the PC. Hence, it was suggested to propose it as practical course having 2 credits. (1 credit for theory and 1 credit for Lab), and conduct only lab exam for both CIE test & SEE exam.

4. The remaining 1 credit in the scheme is to be added to the "computer networks" core course, making it as a 4 credit course.

5. One of the External BoS members strongly suggested to rename the course "measurement and Instrumentation" as "Measurement and Process Instrumentation and preparing the syllabus suitably. Another External BoS member suggested to add

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some of the topics, such as Process Instrumentation techniques, such as flow, level, pressure, vibration measurement etc.

6. External BoS Members also suggested to rename "Sensors and Instrumentation" course as "Sensors and Actuators" course and advised to add topics on optical/IR control valves, solenoid, hydraulic, and pneumatic classification and applications.

7. The following suggestions were given for the 3rd and 4th semester courses :
    i.   All the 4 reference books in the 'AEC' course to be added with latest edition. They suggested to include FET Amplifier in Unit-2.

    ii. BoS members suggested to reframe topics, unit wise, in the syllabus of "Data structure", and to include the latest edition reference books.
         Unit-1 STACK & RECURSION
         Unit-2 QUEUES
         Unit-3 LISTS
         Unit-4 TREES
         Unit-5 SORTING AND SERACHING.

    iii. The BoS members opined that the course "Sensors and Actuators" to have the following Unit-wise topics:
         Unit-1 – No change
         Unit-2- To include light sensors
         Unit-3- To remove light sensors and include Zirchonium sensors
         Unit-4- To rename 'special transducers' as 'Industrial Transducers':
                 To include IR sensors, and actuators. In actuators three
                 Classifications, electric, pneumatic and hydraulic types to be
                     Included with two applications of each & remove MEMS sensors.
         Unit-5: To remove case studies on instrumentation applications and include
                     Industrial Sensors (Humidity and moisture sensors to be included.)

    iv. The course "Measurement and Process Instrumentation" Unit-wise topics:
         Unit-1- No change
         Unit-2- To remove dc bridges, ac Bridges and include one bridge each for
                     Measurement of resistance, inductance and capacitance. Include
                     digital instruments.
         Unit-3- Include techniques for flow, pressure level, vibration
                     measurements. Remove old contents
         Unit-4 - Reduce the contents of calibration techniques
         Unit-5- Remove computer controlled instrument test systems full.

    v.   For the course microprocessor and microcontroller suggestions:

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Rename the Unit-5 heading as peripheral based systems

8. The Stake holders (Alumni) and External BoS members suggested to included new elective courses on "Python programming", "machine learning" and "Virtual/ Augmented reality".

9. The BoS members also recommended the following NPTEL courses - for offering electives during 5th semester
    - Introduction to Internet of things
    - Digital image processing
    - Programming in Java
    - Machine learning for engineering and science applications

10. The BoS members expressed their opinion that if NPTEL does not offer the course listed during that particular even/odd semester, alternative courses to be suggested.

11. The BoS members also recommended the following identified NPTEL courses- for 5 years B.E. (Hon.) Degree Program
    - NMR spectroscopy for chemists and biologist
    - Robotics
    - Biomedical signal processing
    - Pattern recognition and application
    - Hardware modelling using verilog
    - Programming in C++
    - Deep Learning.

12. The **draft scheme for 3rd semester M Tech (BMSP&I)** - core and elective courses were discussed and finalized. Suggestion was given regarding reframing of relevant Course Outcomes and to also to include new and updated reference books in the syllabi.

13. One of the External BoS members strongly suggested to rename the course "Bio Materials & Artificial Organs" as "Artificial Organs & Bio Materials".

14. The BoS Members are recommended add the activities on audiometric and vision test for the course Rehabilitation Engineering.

15. Committee member suggested to add latest reprinted text books as reference for all courses.

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16. Finally, chairman thanked for everyone for valuable feedback and advice.

The final approved list of new courses discussed in BoS with feedback received from various stack holders.

Sl.No.	Course Title	Course Code
1	Data structure using C	18EI35
2	Sensors & Actuators	18EI43
3	Micro Processor & Microcontroller	18EI44
4	Design Thinking Lab	18EI47
5	Virtual Instrumentation & Simulation Techniques	18EI55

Chairman
BoS, Dept of E& IE.
Professor & Head
Dept. of Electronics & Inst...
R.V. College of Eng...
Bangalore-...

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1. Dr.MahendraPrashanthProfessor &HoD E&C Dept, SJBIT, Bengaluru
2. Dr. Shivakumar Professor , E&IE Dept, MCE, Hassan
3. Mr. Ramesh Babu, Sr.Manager, JSW, Bellary
4. Mr. Srinidhi, Software Engineer ,NI India, Bengaluru
5. Dr.Padmaja K V, Professor & Associate Dean
6. Dr. Prasanna Kumar S C, Professor
7. Dr.K B Ramesh, Associate Professor
8. Prof. Rachana S Akki, Assistant Professor
9. Prof. Harsha, Assistant Professor

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SI. No	Course Code	Course Title	BOS	Credit Allocation			Total Credits
				Lecture	Tutorial	Practical	
THIRD SEMESTER							
1	18MA31X	Maths-III	MAT	4	1	0	5
2	18ET32	Environmental Technology	BT	2	0	0	2
3	18EI33	Analog Electronic System	EI/EE/TC	4	0	1	5
4	18EI34	Analysis and Design of Digital circuits	EI/EC/TC/ EE	4	0	1	5
5	18EI35	Data Structure	EI	3	0	0	3
6	18EI36	Measurement & Process Instrumentation	EI	3	0	0	3
7	18DCS37	Bridge Course Mathematics*	EI	2	0	0	0
		Total No. of Credits					23
		No. Of Hrs.		19+2 *	4	4	

Note:Tutorials must be project based learning.
*Mandatory Audit course for lateral entry diploma students **Non-contact hours
Each credit must be considered to be 16 hours/semester

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				FOURTH SEMESTER				
Sl. No	**Course Code**	**Course Title**	**BOS**	**Credit Allocation**			**Total Credits**	
				Lecture	**Tutorial**	**Practical**		
1	18MA41X	Mathematics - IV	MAT	4	1	0	5	
2	18EM42X	Engineering Materials / Bio Engineering	BT	2	0	0	2	
3	18EI43	Microprocessor, Microcontroller & Applications	EI/EC/ TC	3	0	1	4	
4	18EI44	Sensors and Actuators	EI	3	0	1	4	
5	18EI45	Signals & Systems	EI/EC/ TC/EE	3	1	0	4	
6	18EI46	Control Systems	EI/EE	3	0	0	3	
7	18EI47	Design Thinking lab	EI	0	0	2	2	
8	18HS48	Professional Practice-I	HSS	0	0	1	1	
9	18DMA49	Bridge Course C Programming *	CSE	1	0	1	0	
		Total No. of Credits					25	
		No of hours		18+1	4	8+2		

**Non-contact hours
   BT and Chemical – 1 course
   Bridge Course C programming will have 1 hour theory in lab.
   Tutorials must be project based learning.
Internship to be taken up during the vacation (After 4th semester)
*Mandatory Audit course for lateral entry diploma students

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FIFTH SEMESTER							
Sl. No	Course Code	Course Title	BOS	Credit Allocation			Total Credits
				Lecture	Tutorial	Practical	
1	18HSI51	Foundations of Management & Economics	HSS	3	0	0	3
2	18EI52	Computer Networks	EI	3	1	0	4
3	18EI53	Digital Signal Processing& Applications	EI/TC /EE/EC	3	1	1	5
4	18EI54	VLSI Design Technology	EI	3	0	1	4
5	18EI55	Virtual Instrumentation & Simulation	EI	1	0	1	2
6	18EI5AX	Elective A (PE)	EI	3	0	0	3
7	18G5BXX	Elective B (OE)*	Respective BOS	3	0	0	3
8	18IN56	Internship	EI	0	0	2	2
		Total No. of Credits					26
		No. Of Hrs.		19	4	8	

*Students should take other department Global Elective courses
Note: Internship evaluation to be conducted during 5th semester and will have credits.

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Sl. No	Course Code	Course Title	BOS	Credit Allocation			Total Credits
				Lecture	Tutorial	Practical	
1	18HEM61	IPR & Entrepreneurship	HSS	3	0	0	3
2	18EI62	Automatic Process Control Technology	EI	3	0	1	4
3	18EI63	Advanced Micro-controller & Application (ARM)	EI	3	0	1	4
4	18EI64	Minor Project**	EI	0	0	3	3
5	18EI6CX	Elective C (PE)	EI	3	0	0	3
6	18EI6DX	Elective D (PE)	EI	3	0	0	3
7	18G6EXX	Elective E (OE)*	Respective BOS	3	0	0	3
8	18HSE68	Professional Practice-II	HSS	0	0	1	1
		Total No. of Credits					24
		No. Of Hrs.		18	0	10+2	

SIXTH SEMESTER

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SEVENTH SEMESTER							
Sl. No	Course Code	Course Title	BOS	Credit Allocation			Total Credits
				Lecture	Tutorial	Practical	
1	18EI71	Constitution of India	HSS	2	0	0	2
2	18EI72	Industrial Controls & Applications	EI	4	0	1	5
3	18EI73	Instrumentation Buses and Industrial Networks	EI	4	1	0	5
4	18EI7FX	Elective F (PE)	EI	3	0	0	3
5	18EI7GX	Elective G(PE)	EI	3	0	0	3
6	18G7HXX	Elective H (OE)*	Respective BoS	3	0	0	3
		Total No. of Credits					21
				19	2	0	21

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SL. N o	Course Code	Course Title	BOS	Credit Allocation			Total Credits
				Lecture	Tutorial	Practical	
			EIGHTH SEMESTER				
1	18XXP81	Major Project	EI	0	0	16	16
		Total No. of Credits					16
		No. Of Hrs.		0	0	32	

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Electives

5th sem

Professional Electives (A) - NPTEL
Introduction to Internet of things
Digital Image Processing
Programming in Java
Machine Learning for Engineers & Science applications

6th sem

Professional Electives(C)	Professional Electives (D)
Analytical Instrumentation	Real Time Operating Systems
Aircraft Instrumentation	Digital Communications
Advanced Control Systems	Micro Electro Mechanical Systems
Biomedical Instrumentation	Computer Organization & Architecture

7th sem

Professional Electives(F)	Professional Electives (G)
Medical Imaging Techniques	Introduction to I4.0 and Industrial Internet of Things
Robotics	Safety Instrumentation
Product Design Technology	Wireless Instrumentation
Deep Learning techniques	Virtual Reality & Augment Technology

Open Electives Offered by the Department

Open Electives (B) 5th Sem	Open Electives (E) 6th Sem	Open Electives (H) 7th Sem
Smart Sensors & Instrumentation	Virtual Instrumentation & Applications	Micro Electro-Mechanical Systems and Applications
		Industrial Automation & Fuzzy Logic applications

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DEPARTMENT OF ELECTRONICS & INSTRUMENTATION ENGINEERING
PG in BIO MEDICAL SIGNAL PROCESSING & INSTRUMENTATION

THIRD SEMESTER CREDIT SCHEME

Sl. No.	Course Code	Course Title	BoS	Credit Allocation			
				L	T	P	Total Credits
1	18MBS31	Medical Imaging and Techniques	EI	4	1	0	5
2	18MBS3EX	Elective -E	EI	4	0	0	4
3	18MBS33	Internship	EI	0	0	5	5
4	18MBS34	Dissertation Phase I	EI	0	0	5	5
Total number of Credits							19
Total Number of Hours / Week							

FOURTH SEMESTER CREDIT SCHEME

Sl. No.	Course Code	Course Title	BoS	Credit Allocation			
				L	T	P	Total Credits
1	18MBS41	Dissertation Phase II	EI	0	0	20	20
2	18MBS42	Technical Seminar	EI			2	2
Total number of Credits							22
Total Number of Hours / Week							

III Semester			
GROUP E: CORE ELECTIVES			Credits
Sl. No.	Course Code	Course Title	
1.	18MBS3E1	Artificial Organs & Bio Materials	4
2.	18MBS3E2	Rehabilitation Engineering	4
3.	18MBS3E3	Ergonomics	4

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Professor & Head
Dept. of Electronics & Instrumentation Engg
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27.04.2019

20ᵗʰ · BoS Meeting - 2019

Department: Electronics & Instrumentation Engineering

S.No	Name	Signature
1	Dr. CH. Renu Madhavi, HoD &Associate. Professor **BoS Chairman**	CH. Renuse-dig 27/4/19
2	Dr. K.V. Padmaja, Professor BoS Member	Padmaja. K 27/4/19.
	Dr. S.C. Prasanna Kumar, Professor BoS Member	Prasanna 27/4/19
	Dr. K.B. Ramesh, Associate. Professor BoS Member	23/4/
	Mr. S. Venkatesh, Associate. Professor BoS Member	S. Venkatesh
	Mrs. Rachana S. Akki, Asst. Professor BoS Member	Rachana S.A.
	Mr.Harsha.H, Asst. Professor BoS Member	Harsh 27/4
3	**Dr. Mahendra Prashanth K V,** Professor & HoD Dept of E& C SJB Institute of Technology **BoS Member-Subject Expert**	27.4.19
	Dr. G Shivkumar Professor Dept of E & IE, M.C.E.Hasan **BoS Member-Subject Expert**	Shive e
4	Awaiting	
5	**Mr. Ramesh Babu . K** Senior Manager Jindal Steel Works, Energy Ltd., **BoS Member-Industry Expert**	
6	Mr. Srinidhi. N Sr. Engineer, National Instruments, Bangalore. **BoS Member- Postgraduate Meritorious alumnus**	
7	**Dr Mallikarjuna Holi** Professor and Chairman Department of E &IE University B.D.T College of Engineering · **Special Invitee-BoS**	—AB—

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Action Taken report for 20ᵗʰ BoS Meeting

Sl.NO.	Agenda	BoS Members Comment	Action Report
1		BoS members recommended only practical component for "Virtual Instrumentation & Simulation" course for 5th semester.	Included as lab only course in 5ᵗʰ semester with 2 credits (18EI55).
2.	UG 2018 3ʳᵈ & 4ᵗʰ semester BoS	One of the External BoS members strongly suggested to rename the course "Measurement and Instrumentation" as "Measurement and Process Instrumentation and preparing the syllabus suitably. Another external BoS member suggested to add some of the topics, such as Process Instrumentation techniques, such as flow, level, pressure, vibration measurement etc.	The course "Measurement and Instrumentation" renamed as "Measurement and Process Instrumentation" (18EI36). The process instrumentation techniques are included in Unit-III.
3.		BoS members suggested to reframe topics, unit wise, in the syllabus of "Data structure" and to include the latest edition reference books. Unit-1 STACK & RECURSION Unit-2 QUEUES Unit-3 LISTS Unit-4 TREES	According to the suggestion, the syllabus is reframed.

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		Unit-5 SORTING AND SEARCHING.	
4.		The BoS members also recommended the following NPTEL courses - as electives during 5th semester. • Introduction to Internet of things • Digital image processing • Programming in Java • Machine learning for engineering and science applications	The few NPTEL courses are included in NPTEL choice list: • Programming in Java • Artificial Intelligence
5.	PG 2018 3rd & 4th semester BoS	External BoS members strongly suggested to rename the course "Biomaterials & Artificial Organs" as "Artificial Organs & Biomaterials".	The course introduced as elective course with recommended title.

BoS Chairperson

Professor & Head
.Dept. of Electronics & Instrumentation Engg
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Ref:

Date: 10-02-2020

CIRCULAR

The E& IE Department, RVCE, invites your good self for a 21st "BoS Meeting", scheduled on **22nd Feb, 2020, Saturday, at 10.00 A.M**, in the department.

Agenda:

1. Suggestions & approval of the detailed syllabus of 5th & 6th semester B.E. (Electronics & Instrumentation Engg.)

2. Suggestions & approval of Industrial based Electives for 6th semester

3. Selection/Approval of NPTEL Courses (3 credit course) for Elective – A for 5th semester

Venue: EIE Dept. Library

Time: 10.00 AM to 3.00 PM

You are cordially invited.

10|2|2020.

HoD
Professor & Head
Dept. of Electronics & Instrumentation Engg
R.V. College of Engineering
Bangalore-560 059

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Date: 22-02-2020

BoS Meeting – Minutes

The BoS Chairperson, Dr. Renu Madhavi, welcomed the BOS Members for the **21st BoS meeting.**

1. The revised schemes and syllabus of 5th to 6th semester **B.E. (E& IE)** were discussed.

2. It is mandatory to opt at least one elective Course from NPTEL/Swayam group of appropriate elective courses - preferably during the 5th semester B.E. The members suggested and approved the following list of new electives for Elective-A category as:

    a. Programming in Java

    b. Artificial Intelligence: Knowledge Representation and reasoning/An introduction to Artificial Intelligence

    c. Machine Learning, ML

    d. Computer Architecture and Organization

    e. Analog Communication (Principal of Communication Systems-1)

    f. Fundamental of Automotive Systems (If it more on mechanical concept, then this elective to be discarded in the group)

As per the Stake holders feedback the above said Professional core electives are included in the V and VI semester EIE curriculum.

The Bos members suggested to **check the NPTEL calendar** and choose the courses, so that it does not clash with our academic calendar.

3. **Few of the elective courses** in Group C and Group D were **altered** and the same was kept in front of the committee for approval.

4. The BoS chairman informed that Digital Signal Processing & Application for 5th sem E& IE is offered jointly by, TE and E& IE, where the TE is the board for syllabus and CIE and SEE evaluation.

5. BoS members suggested that for **Computer Networks** course offered in V semester has to include **Network simulation experiments,** which has to be practiced in the tutorial, to justify the mentioned CO4 in the syllabus.

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6. BoS members suggested to include Dougles V Pucknel as 1st reference Book for VLSI design technology and suggested to reframe on the laboratory experiments.

7. BoS members suggested to assign **micro/mini project** with real time application for each module for Virtual Instrumentation & Simulation course. They also suggested that the course coordinator should give 5 to 10 problems of the same complexity for all the modules and also suggested to introduce minor project in VI semester curriculum with 3 credits.

8. For the course Smart sensor & Instrumentation, BoS members suggested to get associate with other colleges for workshops and give a better exposure to the students for knowing the cutting edge technologies on **sensor design and applications**, and also suggested to frame the questions on the design of the sensors, efficiency calculation for a sensor calibration rather than asking the principle of operation for the open book exams.

9. BoS members suggested that for **Automatic Process Control Technologies(APCT)** course to include Alarm and Annonciator design and application and problems for Unit-III, and also suggested to give assignment on PID controllers, dedicated to particular system or micro controller for ex: boiler, generator, turbine from DCS prospective

10. BoS members suggested to reframe the syllabus for Robotics and suggested to include the applications along with the simulation examples.

11. BoS members suggested to reframe the syllabus for, **Aircraft instrumentation** and take a suggestion from an expert in the same field, they also suggested to include case studies on the **black box features**.

12. BoS members suggested to reframe the syllabus for **Advanced Control System**, to remove Unit-I since it has been repeated in APCT and include **protection and interlocks** with industrial environment and also suggested to include case studies.

13. BoS members suggested to reframe the syllabus for Biomedical Instrumentation, that instrument usage to be shown as simulation for every medical instrument mentioned in the syllabus, and to give case studies as assignment.

14. BoS members suggested to reframe the syllabus for Real Time Operating Systems so that the teaching has to be done in a way where the student should differentiate the

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concept of process management, file management, image processing and fault tolerance in the platform of normal **OS and RTLinux**.

15. BoS members suggested to reframe for **Internet of Things** by removing the Python language concept in Unit-II and **R-PI kits to be bought and demonstrate the concept of working**.

16. BoS members suggested to get the information on the cutting edge technology for **ASIC course** by an expert.

17. BoS members suggested to offer **Bio Medical Instrumentation and Applications as PG Global elective, and also suggested to choose any subject** by taking the approval of the internal department members.

The **final approved list of new courses** discussed in BoS with feedback received from various stack holders.

Sl.No.	Course Title	Course Code
1	Programming in Java	18EC5A1
2	Analog Communication	18EC5A2
3	Artificial Intelligence: Search Methods for Problem Solving	18IS5A3
4	Computer Architecture and Organization	18TE5A4
5	Minor Project	18EI64

Chairman BoS,

Dept of E& IE.

Professor & Head
Dept. of Electronics & Instrumentation Eng
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Copy To,

Dr. Mahendra Prashanth, Professor & HoD, Dept. of E&C, SJBIT, Bengaluru

Dr. Shivakumar, Professor , E&IE Dept. MCE, Hassan

Dr. Mallikarjun Holi, Professor , E&IE Dept. University B.D.T.College of Engineering, Davangere,

Mr. Ramesh Babu, Sr. Manager, JSW, Bellary

Mr. Srinidhi, Software Engineer, National Instruments, India

Dr. Padmaja K V, Professor & Associate Dean

Dr. Prasanna Kumar S C, Professor

Prof. Venkatesh S Associate Professor

Dr. K B Ramesh, Associate Professor

Dr. Rachana S Akki, Assistant Professor

Prof. Harsha, Assistant Professor

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FIFTH SEMESTER CREDIT SCHEME

Sl. No.	Course Code	Course Title	BoS	Credit Allocation			Total Credits
				L	T	P	
1.	18HEM51/61	Foundations of Management and Economics	HSS	3	0	0	3
2.	18EI52	Computer Networks	EI	3	1	0	4
3.	18TE53	Digital Signal Processing& Applications (Common to TE & EI)	TE	3	1	1	5
4.	18EI54	VLSI Design Technology	EI	3	0	1	4
5.	18EI55	Virtual Instrumentation & Simulation	EI	0	0	2	2
6.	18EI5AX	Elective A (PE)**	EI	3	0	0	3
7.	18G5BXX	Elective B (OE)*	Respective BOS	3	0	0	3
8.	18IN56	Internship	EI	0	0	2 *	2
		Total Number of Credits		18	2	4+2*	26
		Total number of Hours/Week		18	4	10+2*	26

Sl.No	COURSE TITLE	COURSE CODE	PROGRAMMES
1.	IPR& Entrepreneurship	18HSI51	EC, CS, EE, IS, & TE
2.	Foundations of Management & Economics	18HEM51	ME, CH, IM, EI, CV, BT, & AS

*Students should take other department Global Elective courses

Note: Internship evaluation to be conducted during 5th semester and will have credits

**Elective A: MOOC COURSES (12week course)

Professional Elective: Group A	Open Elective : Group B		
	Sl. No.	Course Code	Course Title
NPTEL/MOOC COURCES	1.	18G5BXX	*Smart Sensors & Instrumentation
	*Offered By Department		

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Sl. No	Course Code	Course Title	BOS	Credit Allocation			Total Credits
				L	T	P	
		SIXTH SEMESTER CREDIT SCHEME					
1.	18HSI51/61	IPR& Entrpreneurship	HSS	3	0	0	3
2.	18EI62	Automatic Process Control Technology	EI	3	0	1	4
3.	18EI63	Advanced Micro-controller & Application (ARM)	EI	4	0	1	5
4.	18EI64	Minor Project**	EI	0	0	2	2
5.	18EI6CX	Elective C (PE)	EI	3	0	0	3
6.	18EI6DX	Elective D (PE)	EI	3	0	0	3
7.	18G6EXX	Elective E (OE)*	Respective BOS	3	0	0	3
8.	18HSE68	Professional Practice-II	HSS	0	0	1	1
	Total Number of Credits			19	0	5	24
	Total number of Hours/Week			19	0	7+1	24

Sl.No	COURSE TITLE	COURSE CODE	PROGRAMMES
3.	IPR& Entrepreneurship	18HSI51	ME, CH, IM, EI, CV, BT, & AS
4.	Foundations of Management & Economics	18HEM51	EC, CS, EE, IS, & TE

Professional Electives : Group C		Professional Electives : Group D	
18EI6C1	Robotics	18EI6D1	Real Time Operating Systems
18EI6C2	Aircraft Instrumentation	18EI6D2	Internet of Things
18EI6C3	Advanced Control Systems	18EI6D3	Application Specific Integrated Circuits
18EI6C4	Biomedical Instrumentation	18EI6D4	Advances in Computer Architecture

Open Elective : Group E	
18G6EXX	* Virtual Instrumentation & Applications
	*Offered By Department

*Students should take other department Global Elective courses

** Non-Contact Hours.

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Date: 22-02-2020

Ref:

21st BOARD OF STUDIES MEETING
[Members present on 22.02.2020]

Sl No.	Name & Designation	BoS	Institution / Organization	Signature
1.	Dr. CH. Renu Madhavi HoD & Associate.Professor	Chairman	RVCE	Ch. Renc-dui 22/2/2020
2.	Dr. K.V. Padmaja Professor	Internal-Member	RVCE	Final PhD-Viva of R.Scholar -EC
3.	Dr. S.C. Prasanna Kumar Professor	Internal-Member	RVCE	Prasanna 22/02/2020
4.	Mr. S. Venkatesh Associate. Professor	Internal-Member	RVCE	S. Venkatesh
5.	Dr. K.B. Ramesh Associate. Professor	Internal-Member	RVCE	Ramesh 22/2/2020
6.	Dr.Rachana S. Akki Asst. Professor	Internal-Member	RVCE	Rachana S-Akki 22/2/2020
7.	Mr.Harsha.H Asst. Professor	Internal-Member	RVCE	Harsh 22/2
8.	Dr. Mahendra Prashanth K V Professor & HoD	External Member-Subject Expert	Dept of E& C SJB Institute of Technology	D.S 22./2.
9.	Dr. G Shiv kumar Professor & HoD	External Member-Subject Expert	Dept of E & IE, M.C.E. Hasan	– AB –
10.	Dr. Mallikarjuna Holi Professor & HOD	External Member-VTU Nominee	Dept of E & IE UBDT Engineering College Davanagere	– AB –
11.	Mr. Ramesh Babu Senior Manager	External Member-Industry Nominee	Jindal Steel Works, Energy Ltd., Bellary	KB
12.	Mr. Srinidhi. N Sr. Engineer	External Member-Alumni	National Instruments, Bangalore	S.H

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Action Taken report for 21st BoS Meeting

SI.NO.	Agenda	BoS Members Comment	Action Report
1		BoS members suggested to include Network simulation experiments **for Computer Networks** course offered in V semester.	CISCO packet tracer simulation tools will be taught for network routing and other applications.
2.	UG 2018 5th & 6th semester BoS	BoS members suggested to include Alarm and Annunciator design and application and problems for Unit III, and also PID design experiments using microcontroller in Laboratory experiments for **Automatic process Control Technologies (APCT)** course.	**Alarms (single and multi-variable alarm) with design** example will be covered in Unit-III.
3.		BoS members suggested to reframe the syllabus for **Robotics** and suggested to include the applications along with the simulation examples.	The Robotics simulation experiments will be taught using **Matlab Simulink** and open software platform.
4.		BoS members suggested to reframe the syllabus for **Advanced Control System.** To remove Unit I since it has been repeated in APCT and include protection and interlocks with industrial environment and suggested to include case studies	Suggestions will be incorporated as in the course **Advanced Control System (18EI6C3).** Advanced Applications topics are included in Unit-V.

BoS Chairperson

Professor & Head
Dept. of Electronics & Instrumentation
R.V. College of Engineering
Ba

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RVCE email

HOD Dept. of IT, RVCE <hod.it@rvce.edu.in>

22nd BoS Invitation - Friday 11 Dec 2020
1 message

HOD Dept. of EIE, RVCE <hod.it@rvce.edu.in>   Wed, Dec 2, 2020 at 2:30 PM
To: "Dr. CH. RENUMADHAVI" <renumadhavi@rvce.edu.in>, "Dr. K. V. PADMAJA" <padmajakv@rvce.edu.in>, "Dr. S. C. PRASANNA KUMAR" <prasannakumar@rvce.edu.in>, "Mr. VENKATESH S" <venkateshs@rvce.edu.in>, "Dr. K. B. RAMESH" <rameshkb@rvce.edu.in>, "Mrs. RACHANA. S. AKKI" <rachana.akki@rvce.edu.in>, Anand Jatti <anandjatti@rvce.edu.in>, "Mr. HARSHA HERLE" <harsha@rvce.edu.in>, msholi@yahoo.com, gskmce@gmail.com, kvmprashanth@sjbit.edu.in, Srinidhi N <srinidhi.n@gmail.com>
Cc: "Mr. ANIL KUMAR. N. A" <anilkumarna@rvce.edu.in>

Dear Sir/Madam

The E& IE Department, RV College of Engineering, invites your good self for the 22nd " **Online BoS Meeting",** scheduled on **11th Dec, 2020, Friday, at 2.30 P.M.**

Agenda:

1. Highlights of NEP
2. Activities carried out during Covid Break
3. Result analysis of Even semester 2020
4. Discussion about syllabus revision for 2021 scheme in-line with NEP2020
5. Any other matter

Mode: Online Meeting – CICSCO WEBEX

Time: 2.30 PM to 4.30 PM

Meeting Link: https://rvce.webex.com/rvce/j.php?MTID= m751cfa3d949fd56376820d752024eab1

Meeting number: 158 036 5444
Password: 1234

Chairman -Board of Studies
Professor & Head
Dept. of Electronics & Instrumentation Engg
R.V. College of Engineering
Bangalore-560 059

--
Regards
Dr. Renu Madhavi
HOD EIE Dept.
R V C E,
Bengaluru-59.
080-67178044

📝 **22nd_BoS_Meeting.doc**
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Date: 11-12-2020

Minutes of Meeting of 22nd BoS Meeting

Members Present for the Meeting:

Dr. Mahendra Prashanth, Professor & HoD, Dept. of E&C, SJBIT, Bengaluru

Dr. Shivakumar, Professor , E&IE Dept. MCE, Hassan

Dr. Mallikarjun Holi, Professor , E&IE Dept. University B.D.T.College of Engineering, Davangere,

Mr. Srinidhi, Software Engineer, National Instruments, India

Dr. Padmaja K V, Professor & Associate Dean

Dr. Prasanna Kumar S C, Professor

Prof. Venkatesh S Associate Professor

Dr. K B Ramesh, Associate Professor

Dr. Rachana S Akki, Assistant Professor

Prof. Harsha, Assistant Professor

The Dr.CH Renu Madhavi, BoS Chairperson, welcomed the BoS Members during the **22nd BoS meeting.**

1. Prof.Renumadhavi madam presented about activities carried in department during COVID period. Also, discussed about requirement of Syllabus preparation of 2021 as per NEP 2020.

2. Discussed the result Analysis of previous odd semester Exams results of all semester.

3. Dr.Shivakumar G told to compare previous (Offline) and present (Online) exam result Analysis.

4. Dr.Shivakumar G Suggested to include Basic Electronics and PYTHON programming in first year.

5. BoS member Dr.K V Mahendra Kumar sir suggested to prepare a) Frame work of syllabus from first semester to eight semesters. b) Programming skills and PCB concepts of Instrumentation to be added.

6. Dr.K.V.Padmaja madam also elaborated the requirements of syllabus as per NEP from 1st year to 4th year requirement and also told about syllabus modification process and meeting carried by Physics Dept, Chemistry and Mathematics Dept by conducting meetings with different departments according to their requirements of syllabus..

7. BoS member Mr.Srinidhi suggested Machine learning and Data Sciences courses to be added.

8. Statistical course to be added for interpretation & analysis of data for better results conclusion.

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9. Dr.K.B.Ramesh sir told to cut down theory part and add more laboratory experiments.

10. Mr.Srinidhi suggested Assignments could be Simulated Experiments.

11. Mr.Srinidhi suggested to add programming language PYTHON in first year level, In Mathematics give application oriented assignments, self learning experiments.

12. Differential equations, Calculus and Statistical Analysis courses to be added as Mr.Srinidhi suggested.

13. Also Mr.Srinidhi suggested including Machine Learning course, Data Analytics and Data Science Course and Artificial Intelligence course.

14. Prof.Renumadhavi madam discussed about pillars of Industry 4.0 courses such as Cyber Security, Cloud Computing, Augmented reality, Internet of things to Committee members for inclusion in to curriculum.

15. Dr.Mallikarjun Holi sir suggested to include more laboratories attached courses so that students can spend more time for their skill enhancement.

16. Prof.Renumadhavi madam told about design thinking Laboratory and how it is working to all committee members.

17. Dr.S.C.Prasannakumar asked to Dr.Mallikarjun Holi sir, regarding fitment of laboratories in the existing curriculum.

Chairman BoS,

Dept of E& IE.

Professor & Head
Dept. of Electronics & Instrumentation Eng
R.V. College of Engineering
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Members present for 22nd BoS meeting of Dept.of Electronics and Instrumentation Engineering,

RVCE, Bengaluru.

Name	Signature of Member
Dr.K V Mahendra Prashanth, Professor & HoD, Dept. of E&C, SJBIT, Bengaluru	online
Dr.G. Shivakumar, Professor , E&IE Dept. MCE, Hassan	online
Dr. Mallikarjun Holi, Professor, E&IE Dept. University B.D.T.College of Engineering, Davangere	online
Mr. Srinidhi, Software Engineer, National Instruments, India	S~
Dr. Padmaja K V, Professor & Associate Dean	Padmaja.KV 15/12/2020
Dr. Prasanna Kumar S C, Professor	Prasanna 11/12/2020
Prof. Venkatesh S Associate Professor	S. Venkatesh
Dr. K B Ramesh, Associate Professor	KBRamesh 11/12/2020
Dr. Rachana S Akki, Assistant Professor	Rachana S Akki 11/12/20
Prof. Harsha, Assistant Professor	Harsha 11/12/2020

Ch-Renoadeni 11/12/2020

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22nd Online BoS Meeting held on 11 DEC 2020

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Action Taken report for 22nd BoS Meeting

Sl.NO.	Agenda	BoS Members Comment	Action Report
1		BoS Members suggested to include Basic Electronics and PYTHON programming courses in 1st semester.	Python and other programming languages will be offered in the curriculum.
2.		BoS member suggested to included Machine learning and Data Sciences courses in 1st year syllabus.	These courses will be included as NPTEL course in 4th and 5th semester curriculum.
3.	NEP Syllabus in 2021 Scheme	Programming skills and PCB concepts to be incorporated in the curriculum.	Skill labs will be introduced in every semester on soft skills and PCB making.
4.		Suggested to focus, more on practical aspects on new cutting-edge technologies.	Experiential learning will be given more weightage.
5.		Suggested to include more laboratories attached courses so that students can spend more time for their skill enhancement.	Innovative experiments are included in every lab attached courses.

BoS Chairperson

Professor & Head
Dept. of Electronics & Instrumentation Engg
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Dear Sir/Madam

The E& IE Department, RV College of Engineering, invites your good self for the 23rd
"Online BoS Meeting", scheduled on 15th June, 2021, Tuesday, at 11.00 A.M.

Agenda:

1. Discussion about Scheme of the 7th and 8th semester, 2018 Batch.
2. Discussion about detailed Syllabus of the 7th and 8th semester, 2018 Batch.
3. Result analysis of Odd semester 2020.
4. Any other matter.

Mode: Online Meeting – CICSCO WEBEX
Time: 11.00 AM to 3.00 PM.

Meeting link:

https://rvce.webex.com/rvce/j.php?MTID=md627ee7e2b7a8dafb95f909bce5e5163
Meeting number: 158 079 2145
Password: 123456
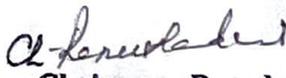
Chairman -Board of Studies
Professor & Head
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Minutes of Meeting

The BoS Chairperson, Dr. Renu Madhavi CH, welcomed both the BOS Members for the 23rd BoS meeting of E&IE Dept., RVCE, on 15th June, 2021.

1. The revised schemes of 7th to 8th sem B.E. (E&IE) syllabus were discussed.

2. The BoS Chairperson briefed the following to the BOS members present – for their approval:

   - Presented the 7th and 8th Semester – 2018 Autonomous scheme, with total credits - limited to 39 credits - for 7th and 8th semester BE Programmes.

   - The 8th semester syllabus of 2018 scheme will be having only the "Major Project" component, with 16 credits.

3. Stake holders suggested to include industry based course in the 7th semester curriculum. They opined to include Bosch & Siemens PLC programme in the lab component.

4. For the course, "Industrial Automation Technologies", an external BoS Member (Academic Expert) suggested to include Bosch & Siemens PLC programming in the experiential learning, so that students can explore more numbers of PLC and can align with Industry. Also, they suggested to mention some of the Automation Studio & demonstration experiments, as a separate list, in the List of Lab Experiments.

5. One of the External BoS members (Academic/Research Expert) strongly suggested to rename the course "Advanced Image Processing" as "Digital Image Processing & Applications" and prepare the syllabus suitably. Also, BoS Chairperson informed that our Institution is having lot of projects on Image processing and so our students can take up those projects for their 8th semester

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major project. The BoS Chairperson suggested to include applications of medical fields and satellite imaging in the syllabus.

6. One of the BoS members (Industry expert) suggested to update the 1st course CLO of the "Safety Instrumentation" course, as "Understand the importance of Industrial **process** Safety concepts".

7. For the course, "Product Design Technology", external BoS member suggested to incorporate some of the topics like design and development of product manufacturing, 3D Design, Digital modelling, and animations in the syllabus.

8. For the new course, "Advanced Software Tools for Instrumentation and Controls", an external BoS Members suggested to include 'python programming' for measurement applications, in the syllabus. And, also, to include few more topics on 'Scilab tools', in the syllabus.

9. For the new course, "IoT based Agricultural Automation", external BoS Members suggested to refer NPTEL Videos and applications for reframing the syllabus. And also suggested to include tensor flow framework for understanding of few applications on agricultural domain. External BoS Members also suggested to include activity-based learning for some of topics in the syllabus.

10. For the course, "Industrial Wireless Technologies", an external BoS Member (Alumni industry Expert) suggested to incorporate few more wireless technologies in the syllabus. Another BOS member pointed out that the contents of some of the units must be appropriate to the chapter titles, or vice versa.

11. For the course, "Virtual and Augmented Reality", external BoS (Academic Expert) suggested to include 2 Units on 'Augmented Reality' at the end, since this course syllabus contains only Virtual Reality.

12. The BoS Chairperson also **presented the results analysis of** 3rd, 5th, and 7th odd semesters of 2020. The chairperson also presented the result analysis of Offline

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and Online mode semesters, and also informed that offline mode has shown better results.

13. Finally, the Chairperson thanked everyone for their valuable suggestions and advice.

The **final approved list of new courses** discussed in BoS with feedback received from various stack holders.

Sl.No.	Course Title	Course Code
1	Internship	18EI74
2	Advanced Software Tools for Instrumentation and controls	18EI7F3
3	IoT based Agricultural Automation	18EI7F4

Chairman

BoS E&IE
Professor & Head
Dept. of Electronics & Instrumentation Engg
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SEVENTH SEMESTER CREDIT SCHEME							
Sl. No.	Course Code	Course Title	BoS	Credit Allocation			Total Credits
				L	T	P	
1.	18HS71	Constitution of India and Professional Ethics	HSS	3	0	0	3
2.	18EI72	Industrial Automation Technologies (Theory & Practice)	EI	4	0	1	5
3.	18EI73	Digital Image Processing & Applications (Theory & Practice)	EI	3	0	1	4
4.	18EI74	Internship	EI	0	0	2	2
5.	18EI7FX	Elective F (PE)	EI	3	0	0	3
6.	18EI7GX	Elective G (PE)	EI	3	0	0	3
7.	18G7HXX	Elective H (OE)*	Res. BOS	3	0	0	3
		Total Number of Credits		19	0	4	23
		Total number of Hours/Week		19	0	5	24

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SL No.	Course Code	Course Title	BoS	Credit Allocation			Total Credits
		EIGHT SEMESTER CREDIT SCHEME					
				L	T	P	
1.	18EIP81	Major Project	XXX	0	0	16	16
		Total Number of Credits		0	0	16	16
		Total number of Hours/Week				32	

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VII Semester			
PROFESSIONAL ELECTIVES (GROUP F)			
Sl. No.	Course Code	Course Title	Credits
1.	18EI7F1	Process Safety Instrumentation	3
2.	18EI7F2	Product Design Technology	3
3.	18EI7F3	Advanced Software Tools for Instrumentation and Controls	3
4.	18EI7F4	IoT based Agricultural Automation	3

VII Semester			
PROFESSIONAL ELECTIVES (GROUP G)			
Sl. No.	Course Code	Course Title	Credits
1.	18EI7G1	Industrial Wireless Technologies	3
2.	18EI7G2	Virtual and Augmented Reality	3
3.	18EI7G3	Bio Medical Signal Processing	3
4.	18EI7G4	Low Power VLSI Design	3

VII Semester				
OPEN ELECTIVES (GROUP H)				
Sl. No.	Course Code	Host	Course Title	Credits
1.	18XX7H8	EI	MEMS & Applications	3

Copy to all the BOS Members:

1. Dr. Mallikarjuna Holi, Prof., & Principal, University B. D. T. College of Engineering, Davanagere.

2. Dr. Mahendra Prashanth, Professor & HoD, Dept. of E&C, SJBIT, Bengaluru.

3. Dr. Shivakumar, Professor , E&IE Dept. MCE, Hassan.

4. Mr. Ramesh Babu, Sr. Manager, JSW, Bellary.

5. Mr. Srinidhi, Software Engineer, National Instruments, India.

6. Dr. Padmaja K V, Professor & Associate Dean, EIE, RVCE.

7. Dr. Prasanna Kumar S C, Professor, EIE, RVCE.

8. Mr. S. Venkatesh, Assoc. Professor, EIE, RVCE.

9. Dr. K B Ramesh, Associate Professor, EIE, RVCE.

10. Prof. Rachana S Akki, Assistant Professor, EIE, RVCE.

11. Prof. Harsha, Assistant Professor, EIE, RVCE.

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23rd Online BoS Meeting held on 15 June 2021

Action Taken report for 23rd BoS Meeting

Sl.NO.	Agenda	BoS Members Comment	Action Report
1	7th & 8th syllabus 2018 Scheme	For the course, "Industrial Automation Technologies", an external BoS Member (Academic Expert) suggested to include Bosch & Siemens PLC programming in the experiential learning, so that students can explore more number of PLC and can align with Industry. Also, they suggested to mention some of the Automation Studio & demonstration experiments, as a separate list, in the List of Lab Experiments.	• Automation studio experiments are Included in the laboratory components • A visit to the Bosch Rexroth Centre of competence visit will be organized to explore more on Hydraulic, pneumatic and integration of Rexroth PLC with above mentioned units.
2.		External BoS suggested to include 'Augmented Reality' topics with applications and case studies in the Virtual and augmented reality course in 7th semester.	These suggestions are incorporated in Unit IV & V.
3.		For the course, "Industrial Wireless Technologies", an external BoS Member suggested to incorporate few more wireless technologies in the syllabus.	The technologies (LonWorks, 6LoWPAN, HART, LORA) are added in Unit V.

Ch-Renureeskaw

Professor & Head
Dept. of Electronics & Instrumentation Engg
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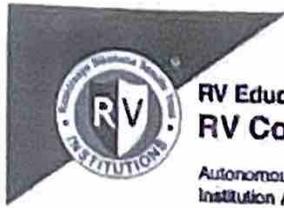
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Dear Sir/Madam

12-03-2022

The E& IE Department, RV College of Engineering, invites your good self for the **24th "Online BoS Meeting"**, scheduled on **12th March, 2022, Saturday, at 10.00 A.M.** onwards.

Agenda:

1. Discussion about UG 2021 Autonomous Scheme for the 3rd and 4th semester.
2. Discussion about detailed Syllabus of UG 2021 Autonomous Scheme for 3rd and 4th semester.

Mode: Online Meeting – CICSCO WEBEX
Time: 10.00 AM to 2.00 PM

Note:

Meeting link:

https://rvce.webex.com/rvce/j.php?MTID=mdca20542ea1643c8e2013fcf9ec54d8f

Password:123456

Syllabus Co-Ordinator

Dr. Rachana S. Akki

Asst Prof

Dept of E & IE

Chairman -Board of Studies

Dr. CH. Renu Madhavi

HOD

Dept of E & IE
Professor & Head
Dept. of Electronics & Instrumentation Engg
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Minutes of Meeting

The BoS Chairperson, Dr. CH. Renu Madhavi, welcomed all the BoS Members for the 24th BoS meeting of E&IE Department., RVCE, on 14th March 2022.

1. As per NEP guidelines, the BOS chairperson, elaborated on the schemes of 1st and 2nd semester physics and chemistry cycle for clear understanding of credits and the syllabus of course Elements of Electronics Engineers (in 1st/2nd semesters) was also shown to the BOS members, so that the BOS members (Academic/Research Expert) have the continuity in understanding the topics to be kept for the 3rd and 4th semester BE (EIE) Program as an extension of Elements of Electronics Engineers.

2. The BOS Chairperson briefed the following to the BOS members (Academic/Research Expert) present – for their approval:

   • Presented the **3rd and 4th Semester – 2021 Autonomous scheme**, with total credits of 23 in 3rd semester and 22 in 4th semester BE Programs. The mathematics Courses of III and IV semester are introduced to cater to the needs of circuit branches.

   • The scheme of both 3rd and 4th semester are attached at last

III SEMESTER COURSES:

1. The syllabus of Professional course – I, **LINEAR INTEGRATED CIRCUITS (21EE33 for 4 credits)** -Theory & Practice, common to EE and EIE branch, with EE as the board, was put forth in front of the BOS members (Academic/Research Expert), all the BOS members (Academic/Research Expert) approved the syllabus. Suggestions were given to follow the marks split up for the experiential learning component.

2. The syllabus of Professional course - II, **ANALOG AND DIGITAL DESIGN CIRCUITS (21EC34 for 4 credits)** - Theory & Practice

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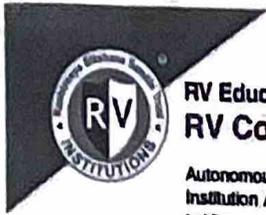
(Common to EC, EE, EI &ET) with EC as the board, was put forth in front of BOS members (Academic/Research Expert), and was approved by the BOS members.

3. The Professional course - III, title as **MEASUREMENT & INSTRUMENTATION (21EI35 for 3 credits)** – Theory, was accepted by the BOS members (Academic/Research Expert), few of the changes suggested by the BOS members (Academic/Research Expert) regarding the course contents will be implemented and will be emailed to all the BOS members (Academic/Research Expert) for the approval. The suggestions regarding the experiential content such as working of sensors and their characteristics along with development of simple designs for sensors using COMSOL MULTIPHYSICS SOFTWARE, will be incorporated in the course.

4. As per the suggestions of stakeholder (industry) The Professional course – IV, **DATA STRUCTURE USING C (21EI36 for 2 credits) is introduced in the** UG 2021 Scheme for III semester, and this was also accepted by the BOS members (Academic/Research Expert).

5. BOS members (Academic) suggested detailed breakup of mark for Summer Internship (21EI310) which is for 2 credits.

IV SEMESTER COURSES

1. The Professional new course – I, of 4th semester, **MICROCONTROLLER AND APPLICATIONS (21EI43 for 4 credits),** theory and practice, common to EC/ET/EI/EE, with EI as board, was discussed, few of the BOS members (Academic) suggested to include Microcontrollers as introductory topic before starting ARM processor. This was also suggested by stake holder (industry experts) and hence it was also approved by BoS.

2. The chairman of BOE suggested that the IDEA LAB, included in 2nd semester for 1 credit, includes introduction of all microcontrollers,
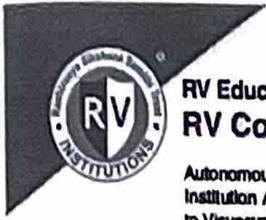
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hence the topics covered in the IDEA LAB will definitely be the prerequisites for the ARM Processor and Applications. The content of the syllabus was approved by the BOS members (Academic/Research Expert).

3. The Professional course-II, of 4th semester, **PROCESS CONTROL & AUTOMATION (21EI44 for 4 credits)**-Theory and Practice- was discussed in the BOS meeting, All the BOS members (Academic/Research Expert) approved the title and suggested few changes to be incorporated in the syllabus by adding more content in the V unit as a part of automation topic. Academic expert in the BOS committee also suggested to include Bosch & Siemens PLC programming in the experiential learning, so that students can explore more numbers of PLC and can align with Industry. Also, they suggested to mention some of the Automation Studio & demonstration experiments, for experiential learning.

4. The Professional new course – III, of 4th semester, **SIGNAL PROCESSING -1 (21EC45 for 3 credits)**, Theory-common to EC/EI/ET, with EC as board was put forth in front of the BOS members (Academic/Research Expert), All of them approved the content of the course.

5. One of the BOS member suggested to rename the **PROFESSIONAL ELECTIVE GROUP A MOOC COURSES** as **PROFESSIONAL ELECTIVE GROUP A NPTEL/SWAYAM COURSES**, since MOOC courses are Proctored and NPTEL/SWAYAM courses are held offline.

6. BOS members (Academic/Research Expert), strongly suggested to include control system as one of the core course in the coming 5th semester.

7. BOS members (Academic/Research Expert), also suggested to enhance the automation content in the next semesters with more depth on the PLC languages along with DCS and SCADA systems.

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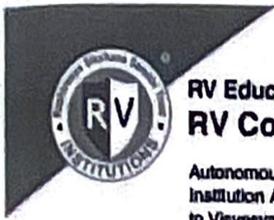
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8. For the Professional Elective Group A NPTEL Courses (21EI4AX for 3 credits) – 05 courses were listed from NPTEL website, which was approved by the BOS members (Academic/Research Expert).

   (NOTE: - As per the new guidelines, NPTEL courses for 2 credits has to be listed and will be provided after BOS approval)

9. Finally, the Chairperson thanked everyone for their valuable suggestions and advice.

The **final approved list of new courses** discussed in BoS with feedback received from various stack holders.

Sl.No.	Course Title	Course Code
1	Linear Algebra, Integral Transforms and Fourier Series	21MA31B
2	Statistics and Probability for Data Science	21MA41
3	Microcontroller & Programming	21EI43
4	Signals & Systems	21EC44
5	Mechanical Measurement Systems	21EI4A1
6	Mechatronics	21EI4A2
7	Introduction to Operations Research	21EI4A3
9	Electronics Equipment Integration and Prototype Building	21EI4A4

Syllabus Co-Ordinator
Dr. Rachana S. Akki
Asst Prof
Dept of E & IE

Chairman -Board of Studies
Dr. CH. Renu Madhavi
HOD
Dept of E & IE
Professor & Head
Dept. of Electronics & Instrumentation Engg
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Copy to all the BOS Members:

1. Dr. Mallikarjuna Holi, Professor, & I/C Principal, University B.D.T. College of Engineering, Davanagere.

2. Dr. Mahendra Prashanth, Principle, SJBIT, Bengaluru.

3. Dr. Shivakumar, Professor & HoD E&IE Dept. MCE, Hassan.

4. Mr. Ramesh Babu, Sr. Manager, JSW, Bellary.

5. Mr. Srinidhi, Software Engineer, National Instruments, India.

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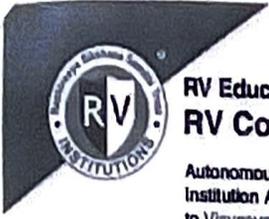
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6. Dr. Padmaja K V, Professor & Associate Dean, EIE, RVCE.

7. Dr. Prasanna Kumar S C, Professor, EIE, RVCE.

8. Prof. S. Venkatesh, Assoc. Professor, EIE, RVCE.

9. Dr. K B Ramesh, Associate Professor, EIE, RVCE.

10. Dr Rachana S. Akki, Assistant Professor, EIE, RVCE.

11. Prof. Harsha, Assistant Professor, EIE, RVCE.

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Sl. No	Course Code	Course Title	BoS	Credit Allocation			Total Credits
				THIRD SEMESTER CREDIT SCHEME			
				L	T	P	
1.	21MA31A*	Engineering Maths-III-	MA	3	1	0	4
2.	21BT32A**	Environmental Technology	BT	2	0	0	2
3.	21EE33	Linear Integrated Circuits	EE*/EI	3	0	1	4
4.	21EC34	Analog & Digital Design Circuits	EC*/EI /ET/EE	3	0	1	4
5.	21EI35	Sensors transducers and Actuators	EI	2	0	1	3
6.	21EI36	Measurement and Instrumentation	EI	1	0	1	2
7.	21DCS37***	Bridge Course:	MA/ CS	2 (A)	0	0	**AUDIT**
8.	21HS38A / 21HS38V	Kannada Course: AADALITHA KANNADA (18HS38A) / VYAVAHARIKA KANNADA (18HS38V)	HSS	1	0	0	1
9.	21HS39	Ability Enhancement course	HSS	0	0	1	1
10.	21EI310	Internship Evaluation	EI	0	0	2	2
		Total Number of Credits					23

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FOURTH SEMESTER CREDIT SCHEME

Sl. No.	Course Code	Course Title	BoS	Credit Allocation			Total Credits
				L	T	P	
1	21MA41A*	Engineering Mathematics – IV	MA	2	1	0	3
2.	21BT42B**	Biology for Engineers	BT	2	0	0	2
3.	21EI43	Microcontroller and Applications	EI*/ EC/ ET/ EE	2	1	1	4
4.	21EI44	Control Theory and Virtual Instrumentation	EI	2	0	1	3
5.	21EC45	Signal Processing -1	EC*/ EI /ET	3	1	0	4
6.	21EI4AX	Professional Elective Group A MOOC Courses	EI	2	0	0	2
7.	21EI46	Design Thinking Lab	EI	2	0	0	2
8.	21DMA47***	Bridge Course: Mathematics	MA/ CS	2[A]	0	0	AUDIT
9.	21HSS48	Universal Human Values and Social Connect	HSS	2	0	0	2
Total Number of Credits							22

Note : The new MOOC courses namely Mechanical measurement systems, Mechatronics , Introduction to operation research , Electronics equipment integration and prototype building are listed under Professional Elective Group A.

24ᵗʰ Online BoS Meeting held on 12 March 2022

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Action Taken report for 24th BoS Meeting

Sl.NO.	Agenda	BoS Members Comment	Action Report
1		BoS Members suggested to include advanced topics on trees and applications of Trees for the course Data structure using C (21EI35)	These suggestions are incorporated in Unit IV and V.
2.	UG 2021 3rd & 4th semester BoS	BoS Members strongly suggested to include control engineering in the 5th semester curriculum.	The control engineering (21EI36) will be introduced as core course in 3rd semester curriculum.
3.		Suggestions were given for follow the marks split up for Experiential Learning components.	The BoS Chairperson suggested to course coordinator to follow proper rubric for EL evaluations.
4.		BoS Members suggested detailed break up of marks for summer internship.	Suggestions will be incorporated and printed in the 3rd and 4th semester syllabus copy.

BoS Chairperson

Professor & Head
Dept. of Electronics & Instrumentation Engg
R.V. College of Engineering
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**Department of Electronics &
Instrumentation Engineering**

Dear Sir/Madam,

18.11.2022

The E&IE Department, RV College of Engineering, invites your good self for the 25th "Online Bos Meeting", scheduled on 28th November, 2022, Monday, at 10.00 A.M. onwards.

Agenda:

I. To discuss and get the approval from BoS members

1. For the Emerging Technologies course "Fundamentals of Sensor technology" which is offered by EIE department.

2. Approval for having no SEE for lab and one question related to lab will be in SEE.

3. To have MCQ's for 1 credit course both CIE and SEE.

II. To identify 2 NPTEL courses from the list of NPTEL electives courses for ensuing V semester 2018 scheme.

Mode: Online Meeting - CISCO WEBEX

Time: 10.00 AM to 12.00 PM

Note:

Meeting link:

https://rvce.webex.com/rvce/j.php?MTID=mb149b52fe891e848b82e5994eb6744be

Syllabus Co-ordinator
Dr. Deepashree Devaraj,
Asst. Prof, Dept of E & IE

Chairman -Board of Studies
Dr. CH. Renu Madhavi
HOD, Dept of E & IE

Professor & Head
Dept. of Electronics & Instrumentation Engg
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**Department of Electronics &
Instrumentation Engineering**

Minutes of 25ᵗʰ BoS Meeting

The BoS Chairperson, Dr.CH.Renu Madhavi, welcomed all the BoS members for the 25ᵗʰ BoS meeting of E&IE Department, RVCE on 28ᵗʰ November 2022. The chairperson said that VTU is trying to implement a new scheme with modifications in line with NEP 2020. Being an affiliated institution with VTU the syllabus had to be changed with effect from academic year 2022.

Agenda:

I. To discuss and get the approval from BoS members

1. For the Emerging Technologies course "Fundamentals of Sensor technology" which is offered by EIE department.

2. For having no SEE for lab and one question related to lab will be asked in SEE for 1ˢᵗ year 2022 scheme

3. To have MCQ's for 1 credit course both CIE and SEE.

II. To identify Two NPTEL courses to replace the two non offering courses of NPTEL in the existing list, for ensuing V semester 2018 scheme.

I. In line with agenda 1, the BoS Chairperson opined that in the current 2022 scheme, the courses having lab component will have no lab exam for SEE. She mentioned that a particular question related to the lab can be asked in the SEE theory exam and for 1 credit course, the pattern would be multiple choice questions for both CIE and SEE. She elaborated about the 4 core streams being Civil, Computer Science, Mechanical and Electronics and that EIE would fall under Electronics stream. The BoS Chairperson mentioned that Emerging technology has a basket of 13 courses and students can choose any one of them. Emerging technology is for 3 credits and no pre-requisite is required for all these courses. As per the Alumni feedback, sensor technology course is introduced under emerging technology basket. The syllabus should be superficial concentrating on (Academic/Industry Expert) regarding the course contents will be implemented and will be emailed to all the BOS members for their approval. The suggestions such as inclusion of photovoltaic cells, deletion of Blood Glucose sensors in Unit 2, to include only few applications in Unit 5 for case study such as sensors understanding of working principle and applications. Dr.Rachana S Akki, Asst. Professor, EIE Department presented the syllabus to the BoS members to get their suggestions. The syllabus of "Fundamentals of Sensor technology" was accepted by the BOS members (Academic/Industry Expert), few of the changes suggested by the BOS members in home automation, automobile applications, agriculture and mobile phone.

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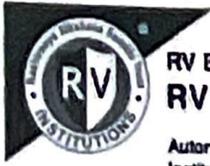
2. In line with agenda II, the list of NPTEL courses offered for the previous batch of 5ᵗʰ semester was presented before the BoS members. The courses were:

i) Programming in Java

ii) Analog Communication

iii) Artificial Intelligence search methods for problem solving

iv) Computer architecture and Organization

v) Joy of Computing using Python

As NPTEL is not offering Analog Communication and Computer architecture and Organization, the courses included in their place were Data analytics with Python and DBMS as suggested and approved by all BoS members. The modified list of electives to be offered to the ensuing 5ᵗʰ semester 2018 scheme will be:

i) Programming in Java

ii) Data analytics with Python

iii) Artificial Intelligence search methods for problem solving

iv) DBMS

v) Joy of Computing using Python

The BoS Chairperson also presented the results analysis of 2ⁿᵈ,4ᵗʰ and 6ᵗʰ semester of 2021.Finally, the chairperson thanked everyone for their valuable suggestions and advice.

Syllabus Co-ordinator
Dr. Deepashree Devaraj,
Asst. Prof, Dept of E & IE
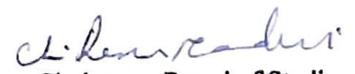
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Dr. CH. Renu Madhavi
HOD, Dept of E & IE
Professor & Head
Dept. of Electronics & Instrumenta†
R.V. Colle⁓⁓ ⁼ ⁼⁼⁼

Copy to all the BOS Members:

1. **Dr. Anuradha, Professor & Chair Person,**Dept of ECE, PES University, Bengaluru.

2. Dr. Prasanna Kumar,Associate Professor,Dept of Electrical and Electronics,UVCE, Bengaluru.

3. **Dr. N Shivakumaran,**Professor,NIT, Trichy. Tiruchirapaali.

4. Mr. Skaria Thomas,ABB, Global Services, India Pvt.Ltd,Bengaluru.

5. Mr. Abhinav A Bijapur, Graphical Structure Hardware Engineer, INTEL Technologies India PVT Ltd Bengaluru.
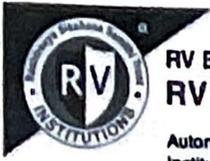
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**Department of Electronics &
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6. Dr. Padmaja K V, Professor & Associate Dean, EIE, RVCE.

7. Dr. Prasanna Kumar S C, Professor, EIE, RVCE.

8. Prof. S. Venkatesh, Assoc. Professor, EIE, RVCE.

9. Dr. K. B. Ramesh, Associate Professor, EIE, RVCE.

10. Dr Rachana S. Akki, Assistant Professor, EIE, RVCE.

11. Dr Deepashree Devaraj, Assistant Professor, EIE, RVCE

12. Prof. Harsha, Assistant Professor, EIE, RVCE.

*Sl.no1 and 3,8 and 9 could not attend the meeting due to preoccupied engagement.

25th Online BoS Meeting held on 28 Nov 2022

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Action Taken report for 25th BoS Meeting

Sl.NO.	Agenda	BoS Members Comment	Action Report
1	UG 2022 1ST & 2ND semester BoS	The BoS member suggested to include case study on home automation, automobile applications, agriculture and mobile phone for the course "Fundamentals of Sensor technology".	The suggestions for the emerging technology (Fundamentals of Sensor technology) course are incorporated in Unit V .

Cl-Renuka Bhavi

BoS Chairperson

Professor & Head
Dept. of Electronics & Instrumentation Engg
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01-06-2023

Dear Sir/Madam

The E& IE Department, RV College of Engineering, invites your good self for the **26th** "Offline **BoS Meeting**", scheduled on **03rd June, 2023**

Saturday, at 10.00 A.M. onwards.

Agenda:

1. Discussion about UG 2021 Autonomous Scheme and syllabus for the 5th and 6th semester.

2021 Syllabus Co-Ordinator
Dr. Rachana S. Akki
Asst Prof
Dept of E & IE

Chairman -Board of Studies
Dr. CH. Renu Madhavi
HOD
Dept of E & IE

Professor & Head
Dept. of Electronics & Inst
R.V. College of Engineering

Copy to all the BOS Members:

1. Dr. Anuradha, Professor & Chair Person, Dept of ECE, **PES University**
2. Dr. Prasanna Kumar, Associate Professor, Dept of Electrical and Electronics, UVCE,
3. Dr. N Shivakumaran, Professor, NIT, Trichy. Tiruchirapaali-620015
4. Mr. Skaria Thomas, ABB, Global Services, India Pvt.Ltd
5. Mr. Abhinav A Bijapur, Graphical Structure hardware. Engineer, INTEL Technologies India FVT Ltd
6. Dr. Rangaiah, HoD, Dept of Electronics and Communication Engineer.
7. Dr. CH. Renu Madhavi, HoD & Associate Professor
8. Dr. K. V. Padmaja, Professor
9. Dr. S. C. Prasanna Kumar, Professor
10. Dr. K. B. Ramesh, Associate Professor
11. Mr. S. Venkatesh, Associate Professor
12. Dr. Rachana S. Akki, Assistant Professor
13. Dr. Harsha H. Assistant Professor

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Minutes of Meeting

The BoS Chairperson, Dr. CH. Renu Madhavi, welcomed all the BoS Members for the 26th BoS meeting of E&IE Dept., RVCE, on 3rd June 2023.

1. As per NEP guidelines, The BoS Chairperson briefed, all the BoS members on the credit distribution from 3rd to 8th semester for clear understanding of credits and the Scheme of 3rd and 4th semester, so as to maintain the continuity of the topics for the higher semesters.

2. Presented the **5th and 6th Semester** – 2021 **Autonomous scheme**, with total credits of 22 in 5th semester and 20 in 6th semester BE Programs.

3. The Scheme for both 5th and 6th semester are **attached below for** reference.

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B.E. IN
ELECTRONICS AND INSTRUMENTATION
ENGINEERING

V SEMESTER								
Sl. No.	Course Code	Course Title	Credit Allocation				BoS	Category
			L	T	P	Total		
1	21HS51	IPRE/FOME (Mandatory Courses)	3	0	0	3	HSS	Theory
2	21EI52	Automatic Process Control and Virtual Instrumentation	3	0	1	4	EI	Theory + Lab
3	21EC53	Digital VLSI Design	3	0	1	4	EC	Theory + Lab
4	21XX54	Professional Core Course 3 (Dept Elective)	3	1	0	4	EI	Theory
5	21XX55	Professional Core Course 4 (Cluster Elective)	2	0	0	2	EI	MOOC
6	21G5XXA	Open elective course 1 (Global elective)	3	0	0	3	EI	Theory
7	21EII56	Summer Internship- II	0	0	2	2	EI	Internship

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Professional Core Course 3 (Dept Elective)

Sl. No.	Course Code	Course Title	Credits
1.	21XX54	Artificial Intelligence in Industrial Automation	03
2.	21XX54	Data Networks	03
3.	21XX54	Industrial Optimization Techniques	03
4.	21XX54	Bio-Electric Potentials & Diagnostic devices	03

Open elective course 1 (Global elective)			
Sl. No.	Course Code	Course Title	Credits
01	21G5XXA	Smart Sensors and Instrumentation	03

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B.E. IN

ELECTRONICS AND INSTRUMENTATION ENGINEERING

SI. No.	Course Code	Course Title	Credit Allocation				BoS	Category
			L	**T**	**P**	**Tot al**		
1	21HS61	IPRE/FOME (Mandatory Courses)	3	0	0	3	HSS	Theory
2	21EI62	Industrial Automation Systems and Networks	3	0	1	4	EI	Theory + Lab
3	21EI63	DSP and ML	3	0	1	4	EI	Theory + Lab
4	21XX64	Professional Core Course 3 (Dept Elective)	3	0	0	3	EI	Theory
5	21XX65	Professional Core Course 4 (Cluster Elective)	3	0	0	3	EI	MOOC
6	21G6XX A	Open elective course 1 (Global Elective)	3	0	0	3	EI	Theory

VI SEMESTER

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Professional Core Course 3 (Dept Elective)			
Sl. No.	Course Code	Course Title	Credits
1.	21XX64	Modelling and Simulation Techniques	03
2.	21XX64	Internet of Things	03
3.	21XX64	Industry 4.0	03
4.	21XX64	Therapeutic Devices and Human System Functioning	03

Open elective course 1 (Global Elective)			
Sl. No.	Course Code	Course Title	Credits
1.	21G6XXA	Industrial Hazards & Automatic Safety Systems	03

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4. As per the suggestions provided the stake holders (Alumni), to make students industry ready , ample of courses were introduced in the curriculum like: Electronic equipment's and prototype building, AR/VR, Machine learning, embedded systems .

5. For the course, **"Automatic Process Control & Virtual Instrumentation"**, for 5th semester, an external BoS Member (Academic Expert) suggested that UNIT 1 Portion to be reduced so that the content can be taught for the allotted teaching hours. One of the BoS member suggested to include the topics how to apply VI in this course, for this, internal BoS members suggested that, this course comprises of experiential learning, and VI basics can be taught to students in experiential learning. BoS members have also suggested to include few text books from authors like *Process System Analysis and Control* by Donald Peak Cougnour, *Fundamentals of Industrial Instrumentation And Process Control* by William Dunn and *Computer Based Industrial Control* by Krishna Kant, they also suggested to remove redundancy in UNIT II, III and IV, One of the member suggested to have the course content under the heads of Analog Controller and Digital Controller and syllabus to be framed in specific to the subheads. Few of the textbooks related to VI written by Jovita Jayram, Shakuntala, Sanjay Gupta also to be added. The List of experiments with lab VIEW simulation tool and controller tuning experiments were approved by the board. Course Outcomes to reviewed once again.

6. For the course " **Digital VLSI Design**", for 5th semester, Dept of Electronics and Communication Engineering, being the common board for this. The BoS members suggested to include VLSI design flow, static timing and dynamic timing analysis, low power techniques, Optimization on area. Topics like Sensor design by VLSI and Bio Medical Sensor to be included. One of the external BoS member from Industry suggested to include text book on "Low power VLSI Circuits and Systems" by Ajit Pal in the list of reference books. External BoS members suggested to rephrase the COs based on the course content. The list of

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experiments were approved by the BoS members. All the suggestions given by our external BoS members are put forward to ECE dept for necessary changes, since they are the board for this course.

7. For the course "**Artificial Intelligence in Industrial Automation**", for 5th semester, one of the BoS member suggested to remove some of the content from UNIT III and to add one of the text book *Artificial Intelligence & Intelligent Systems* by N Padhy, in the reference books.

8. For the course "**Data Networks**", for 5th semester, one of the BoS member from Industry suggested to include contents on 5G connectivity, Laura technology, Propriety protocols, to include some standards like IC62443 – 3 – 2, IEC 61.850, IEC 608.5/104 and DNP Protoco and configuration of L3 level of network.

9. For the course "**Industrial Optimization Techniques**" , for 5th semester, Internal BoS members suggested to once review the title of the course since, it would have been also floated as global elective by other departments.

10. For the course "**Bio-electric potentials and Diagnostic Devices**", for 5th semester, offered as dept elective for 5th sem students and the course: "**Therapeutic Devices and Human System Functioning**" offered as dept elective for 6th semester to be merged as one course, redesigned and offered as dept elective for 5th sem students as suggested by the external BoS members. The BoS members also suggested to include the topic biopotential signals for the first two units and next three units on therapeutic devices. Course outcomes to be changed as per the content of the course.

11. For the course "**Smart sensors and Instrumentation**", for 5th semester , External BoS members suggested to review the contents in the unit III of the syllabus and also suggested to remove the content on frequency response and rearrange the topics. UNIT IV and UNIT V to be merged as one units by reducing few of the sensors which are not relevant and include Smart sensors and special transducers in UNIT V, to justify the title with respect to the content of the syllabus. External BoS member also suggested to include Doeblin text book in the reference books.

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12. For the course, "**Industrial Automation System and Networks**", offered in 6th semester, External BoS members suggested to change the course title to " PLC and SCADA Systems, they suggested to merge the content of UNIT III and UNIT IV and introduce one unit specifically for DCS and SCADA and real time applications. They suggested to include OPC in the UNIT V along with other Data communication networks. They suggested to reframe the Cos , One of the BoS member suggested to include one textbook from author Peng for networks and Practical *"SCADA for Industry"* by David Bailey and MIPENZ, they also suggested to introduce some standards in the course. The list and the content of the lab experiments were approved by the BoS members

13. For the course "**Digital Signal Processing**" and Machine Learning offered for 6th sem , the BoS members suggested to change the title to Digital signal Processing, they suggested text book form authors Shalivahana and Nagoor kani to be included in the reference books. They suggested to include Random signal and stochastic models in UNIT III and to include multirate signal processing and applications in UNIT V.They suggested to relook on to the list of experiments for the laboratory sessions and to reframe the Cos.

14. For the course, " **Modelling and Simulation Techniques**" offered as department elective for 6th semester , the BoS members suggested to remove this course and introduce a course on MEMS and NEMS, the course content will be framed and will be circulated to all the BoS members for approval.

15. For the course, " **Internet of Things**", offered as department elective for 6th sem, BoS members suggested that the content of all the units to be reduced to accommodate the allotted teaching hours, they suggested to remove few contents from UNIT IV, they suggested to include Wi-Fi and blue tooth technology, IoT in Health care and applications, and also suggested to add GRAFANA tool as an HMI and also to add topics related to SQL. The COs to be reframed.

16. For the course, " **Industry 4.0**" offered as department elective for 6th semester, BoS members suggested to add more topics to the each unit and to recheck with

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mechanical dept on course content and the title of the course, so that to avoid redundancy.

17. BoS members suggested that since the courses **"Bio-electric potentials and Diagnostic Devices"**, offered as dept elective for 5th sem students and the course: **"Therapeutic Devices and Human System Functioning"** offered as dept elective for 6th semester to be merged as one course, Hence in place of **"Therapeutic Devices and Human System Functioning"** , BoS members suggested to include a course on **"Machine Learning"** as dept elective for 6th semester students.

18. For the course, **" Industrial Hazards & Automatic Safety systems**, BoS members suggested to change the course title to " Industrial Hazards and Safety Systems. The content for the course was approved by the BoS members. Need to reframe the COs.

19. The list of the MOOC courses have been approved by the BoS members

20. For 6th semester, cluster elective (department specific) courses of 2 in number to be included in the curriculum, which will be opted by circuit branch (EIE, ECE, EEE, ETE) students. The content of those two courses and the syllabus will be shared across to all the BoS members for suggestions and approval.

21. Finally, the Chairperson thanked everyone for their valuable suggestions and advice.

2021 Syllabus Co-Ordinator

Chairperson

BoS E&IE

Professor & Head
Dept. of Electronics & Instrumentation
R.V College of Engineering
Bangalore-560 059

Copy to all the BOS Members:

1. Dr. Mallikarjuna Holi, Professor, & I/C Principal, University B.D.T. College of Engineering, Davanagere

2. Dr. Mahendra Prashanth, Professor & HoD, Dept. of E&C, SJBIT, Bengaluru.

3. Dr. Shivakumar, Professor & HoD E&IE Dept. MCE, Hassan.

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4. Mr. Ramesh Babu, Sr. Manager, JSW, Bellary.

5. Mr. Srinidhi, Software Engineer, National Instruments, India.

6. Dr. Padmaja K V, Professor & Associate Dean, EIE, RVCE.

7. Dr. Prasanna Kumar S C, Professor, EIE, RVCE.

8. Mr. S. Venkatesh, Assoc. Professor, EIE, RVCE.

9. Dr. K B Ramesh, Associate Professor, EIE, RVCE.

10. Dr Rachana S Akki, Assistant Professor, EIE, RVCE.

11. Prof. Harsha, Assistant Professor, EIE, RVCE.

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26th BoS Meeting Attendance

Sl No.	Name	Signature	
1	Dr. Rangaiah L		Invited expert.
2	SKARIA THOMAS		— Industry Expert.
3	Abhinav Bijapur		
4	Dr. Anuradha T	3/6/23	
5	Dr. H. Prasann kumar	3/6/23	
6	Dr. Prasanna Kumar. S. C	3/6/23	
7	Dr Padmaja. K. U.	3/6/23.	
8	Dr Rachana S An		
9	Dr. Harsha		
10	S.Venkatesh		
11	Dr. K. B. Ramesh		
12	Dr. Deepashree Devaraj		
13	Dr. CH Renu madhavi		— chairperson.
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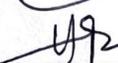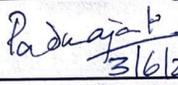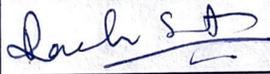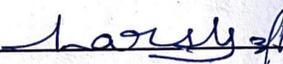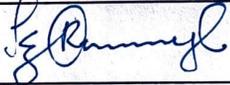
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Action Taken report for 26th BoS Meeting

SI.NO.	Agenda	BoS Members Comment	Action Report
1		The BoS members suggested to include VLSI design timing simulation.	Covered in Unit-I.
2	UG 2022 3rd & 4th UG 2021 5th & 6th semester BoS	For the course, Modelling and Simulation Techniques offered as department elective for 6th semester, the BoS members suggested to remove this course and introduce a course on MEMS and NEMS, the course content will be framed and will be circulated to all the BoS members for approval.	Offered MEMS & Applications course as an elective in Group-B.
3		For the course, " Internet of Things", offered as department elective for 6th sem, BoS members suggested that the content of all the units to be reduced to accommodate the allotted teaching hours, they suggested to remove few contents from UNIT IV, they suggested to include Wi-Fi and blue tooth technology, IoT in Health care and applications.	The syllabus reframed as per the suggestions in Unit IV & V.

Ch-Renukadhav

BoS Chairperson

Professor & Head
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