

**SIR M. VISVESVARAYA INSTITUTE OF TECHNOLOGY**

Krishnadevarayanagar, Hunasamaranahalli, Off. International Airport Road, Bangalore - 562 157.

(Affiliated to Visvesvaraya Technological University, Recognised by AICTE &amp; Accredited by National Board of Accreditation, New Delhi. An ISO 9001 : 2008 Certified Institution.)

Ph.: 080-2846 7248 / 2847 7024 / 25 / 26 Fax : 080-2846 7081

E-mail : principal@sirmvit.edu, sirmvitbgl@gmail.com, Web : www.sirmvit.edu



Date: 23.09.2022

To

**The Registrar (Academics)**  
**VTU Belagavi - 590 018**
**Subject: Request for approval to offer Industrial Engineering and Management Subjects as Open Electives for other branches - Regarding.**

- ❖ With reference to the above, we wish to bring to your kind notice that, Industrial Engineering and Management (IEM) branch was closed and the last batch of IEM has passed out in the year 2022. Open electives of IEM were offered to other branches during the last two academic years 2020-21 and 2021-22 as given below:

Semester	Academic year	Subject Code	Number of Students opted
VII	2021-22	18IM751(Human Resources Management)	451
		18IM752(Organizational Behavior)	32
		18IM753(Supply Chain management)	14
VI	2021-22	18IM652(Data Analytics for Engineers)	45
		18IM653(Engineering Economy)	88
VI	2020-21	18IM652(Data Analytics for Engineers)	102
		18IM653(Engineering Economy)	98

- ❖ As IEM branch was closed, faculty handling IEM Subjects have been shifted to Mechanical Engineering Branch. Faculty members are qualified, competent and have handled the above subjects to other branches in the past two academic years.
- ❖ **Students had opted the above subjects as Open Electives to enhance their employability skills in the present scenario and improve domain knowledge. About 497 students had opted for IEM subjects out of 700 students (71%) and current batch of students are very keen to study the above subjects.**
- ❖ In this regard, we request your kind approval to offer the above IEM subjects as Open Electives for other branches for the academic year 2022-2023, including Mechanical Engineering Students

Expecting your reply at the earliest to help the students.

Thanking you Sir

Yours Sincerely

  
23.9.22

for PRINCIPAL

SIR M. VISVESVARAYA INSTITUTE OF TECHNOLOGY  
 Krishnadevarayanagar, Hunasamaranahalli,  
 International Airport Road, BANGALORE-562 157





HOD MECH &lt;hod\_mech@sirmvit.edu&gt;

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**Feedback about 2021 Scheme\_Mechanical Engineering Board**

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HOD MECH &lt;hod\_mech@sirmvit.edu&gt;

Thu, Jan 20, 2022 at 9:57 PM

To: katti.vadiraj@gmail.com

Cc: academicsyllabus.vtu@gmail.com

**To****The Chairman****Mechanical Engineering Board****VTU Belagavi**

Dear Sir

 **Subject: Feedback about 2021 Scheme - Reg.**

- At the outset I would like to congratulate for being framing of the new scheme 2021. The new scheme has come nicely by covering almost all the latest areas connected with mechanical engineering such as artificial intelligence, machine learning, python programming, data analytics etc. The knowledge on these subjects are very much required for the graduates to compete at a global level. The combination of theory and practicals are really good for better understanding of the subjects. The time allotted for internship during the final semester is most welcome and very much needed for the students. **Overall scheme has come nicely.**
- However, our faculty members who were teaching Mechanical Measurements and Metrology for more than a decade have expressed their views as follows:
  1. The subject Mechanical Measurements and Metrology is not included in the 2021 Scheme in Mechanical Engineering. However, 21MEL46 Mechanical Measurements and Metrology Lab is included in the 2021 Scheme. Without the basic concepts of Mechanical Measurements and Metrology, the students will find it difficult to use them in practical class in Fourth Semester. Hence, we request your kindness to include Mechanical Measurements and Metrology as a theory subject in

either THIRD Semester or FOURTH Semester of 2021 Scheme for the benefit of students.

This is for your kind information.

Regards

Dr K S Shanmukharadhy

Professor & Head

Department of Mechanical Engineering

Sir M Visvesvaraya Institute of Technology

Bengaluru - 562 157



PROFESSOR & HEAD  
Department of Mechanical Engineering  
Sir M. Visvesvaraya Institute of Technology  
Bengaluru-562 157

#### Department Vision, Mission and Program Educational Objectives (PEOs)

**Vision:** To become a leading learning Center in Mechanical Engineering.

#### **Mission:**

**M1:** Enrich the undergraduate experience through experimental learning, and fostering a personalized and supportive environment for their overall development.

**M2:** Provide opportunities to develop talented and committed human resource to meet the needs of profession and society.

**M3:** Provide research and intellectual resources to address contemporary and complex problems of industry and research.

#### **Program Educational Objectives (PEOs)**

After 3/4 years of graduation, the students will have the ability to

**PEO 1:** Establish themselves as successful professionals either as individuals or in team, exhibiting leadership qualities to meet the goals of a project or organization.

**PEO 2:** Analyze, design and solve problems related to Mechanical Engineering.

**PEO 3:** Continuously enhance skills and technologies through self learning.





HOD MECH &lt;hod\_mech@sirmvit.edu&gt;

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**Feedback about 2022 Scheme - Mechanical Stream**

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HOD MECH &lt;hod\_mech@sirmvit.edu&gt;

Sat, Nov 12, 2022 at 10:04 AM

To: registrar@vtu.ac.in, academicsyllabus.vtu@gmail.com

To  
The Registrar (Academics)  
VTU Belagavi

Respected Sir

Feedback

Sub: Feedback about 2022 Scheme - Mechanical Stream - Reg.

1. First Year CAED Teaching Department: The Mechanical Engineering department may be continued as the teaching department. The concepts will be better taught by the Mechanical Engineering faculty.
2. First Year CAED Teaching Hours: (Existing 2 hours theory and 2 hours practice): It is better to have 3 hours theory and 3 hours practice sessions for students to learn the drawing concepts and software usage.
3. Elements of Mechanical Engineering course must be made mandatory for all the branches as basic knowledge is very much required. Everyone in the society comes across with all the contents of mechanical engineering. Better to keep this as a regular subject for all the students.

Regards

*Dr K S Shanmukharadhya**Professor & Head**Department of Mechanical Engineering**Sir M Visvesvaraya Institute of Technology**Bengaluru - 562 157*



HOD MECH &lt;hod\_mech@sirmvit.edu&gt;

**Subject: Feedback on the draft syllabus of subject Elements of Mechanical Engineering (21EME15/25):Reg**

Madhu Kumar MECHANICAL &lt;madhukumar\_mech@sirmvit.edu&gt;

To: katti.vadiraj@gmail.com

Cc: sbhvtuso@gmail.com, "hod.me" &lt;hod\_mech@sirmvit.edu&gt;

Fri, Oct 1, 2021 at 2:28 PM

Dear Sir,

With reference to the above, I am Madhukumar K, Assistant Professor, Mechanical Engineering Department, Sir MVIT, submitting feedback on the draft syllabus of subject Elements of Mechanical Engineering (21EME15/25).

Please find the attachment for your consideration and perusal.

Thanking You

Regards

MadhuKumar K

Assistant Professor

Mechanical Department

Sir M. Visvesvaraya Institute of Technology, Yelahanka, Bengaluru-562157

Phone:+91-9591640030

Email: madhukumar\_mech@sirmvit.edu

"https://www.sirmvit.edu/virtual-tour/"

**Department Vision, Mission and Program Educational Objectives (PEOs)**

**Vision:** To become a leading learning Center in Mechanical Engineering.

**Mission:**

**M1:** Enrich the undergraduate experience through experimental learning, and fostering a personalized and supportive environment for their overall development.

**M2:** Provide opportunities to develop talented and committed human resources to meet the needs of profession and society.

**M3:** Provide research and intellectual resources to address contemporary and complex problems of industry and research.

**Program Educational Objectives (PEOs)**

After 3/4 years of graduation, the students will have the ability to

**PEO 1:** Establish themselves as successful professionals either as individuals or in a team, exhibiting leadership qualities to meet the goals of a project or organization.

**PEO 2:** Analyze, design and solve problems related to Mechanical Engineering.

**PEO 3:** Continuously enhance skills and technologies through self learning.

**PEO 4:** Engage themselves in higher learning leading to degrees or certifications.



**To**  
The Chairperson  
BOS  
VTU, Belagavi-590018

**Date: 01.10.2021**

**From**  
Madhukumar K  
Assistant Professor  
Mechanical Engineering Department  
Sir MVIT  
Bengaluru-562157

Dear Sir,

**Subject:** Feedback on the draft syllabus of subject Elements of Mechanical Engineering (21EME15/25):Reg  
**Ref.Letter.No:**VTU/BGM/BOS/A9/2020-21/2747, dated:27.09.2021

With reference to the above, as a regular EME subject teacher and based on my interaction history with the students, I would like to express my views on the above-mentioned subject as follows.

Before writing my feedback,

1. I would like to thank the BOS, VTU for designing the syllabus combining theory with practical aspect.
2. The concept of integrating practical aspect with theory surely enhances the student's interest towards the subject topics.

I am spending more than 65 hours in a semester for 2018 scheme EME subject to make the topics more attractive and interesting to the students blending lab classes with theory, because the 2018 syllabus is vast.

Considering the 2021 EME scheme and syllabus, I would like to highlight few points as follows.

1. Connection between the topics is missing and there we cannot find the proper teaching sequence.  
Example: energy resources-extraction systems-utilizing and transferring systems-technological advancements.

The best sequence that we can find in previous schemes is as above and missing in present scheme.

2. Time management is again difficult task (considering number of hours allotted in a semester) because the Syllabus is Vast with Laboratory Components.
3. Total teaching hours mentioned is 40 hours which is not sufficient to cope up with theory classes, experiments, demonstration, and plant visits.
4. This hectic schedule will dilute the student's interest towards learning and will be very difficult for them to engage with the activities.

Module wise feedback/queries is as follows;

### Module 1:

1. **Review of energy resources:** is it required to address all types of energy resources (please give clarity)
2. **Applications of steam in various industries:** is detailed explanation required or what type of questions students can expect)
3. **Experiment to investigate the performance of Pelton Wheel/ Francis/Kaplan Turbine.:** Is it required to conduct experiments for all three or anyone.

### Module 2:

1. **Metals:** Classification part can be included. (That gives overview of all materials)

(a) **Properties, Composition and Industrial Applications:** as per the syllabus only these components need to be addressed but it is very much essential to give background information about the materials. But without giving background information students cannot understand properly.

**Example:** As per the percentage of carbon in iron the sequence is: Pig iron-Wrought iron-carbon steels-cast iron-stainless steel-tool steel (but in syllabus only stainless steel and tool steels are mentioned)

The case is same in the topics like composites, smart materials and ceramics also.

(b) Please limit the topics related to materials, so that we can address them effectively

2. **Soldering, Brazing and Welding: Definitions. Classification and methods of soldering, brazing and welding:**

(a) Is it required to explain all methods of soldering and brazing?

(b) May be common/basic procedure of soldering and brazing can be included.

3. **Electric and Hybrid Vehicles: Components of Electric and Hybrid Vehicles, Batteries for EV, Chargers, Power devices, Drives and Transmission:**

(a) This topic can be included after IC Engine and power transmission topics to establish teaching sequence.

(b) How much and what information we should give about Components of Electric and Hybrid Vehicles.?

### Module 3:

1. **Fundamentals of IC Engines:** is it required to explain classification, parts and terminology?

In 2018 syllabus only 2-S petrol engine was there. But as per new syllabus is it required to explain construction and working of 2-S and 4-S petrol and diesel engines.



**2. Heat Transfer Applications:**

- (a) Can be included after or before refrigeration.
- (b) Only introduction or construction and working of devices need to be addressed.

**Module 4:**

**1. Gear Trains and their application: simple and compound Gear Trains, Planetary Gear Trains, Differential Gear Trains.**

- (a) Is it required to address construction, working, applications and derivations related to velocity ratio since it is mentioned that numerical problems on gear trains involving velocity ratios?

**2. Belt Drives**

- (a) Please give clarity about Other Belt Drives, mentioned under types of belt drives.

**3. Concept of Chain, Rope drives and their applications:** Please specify what information the teacher has to address under this section.

**4. Fundamentals of Mechanical Linkages:**

- (a) Only applications need to be addressed or construction and working also included?

**Module 5:**

**1. Fundamentals of Machine Tools and Operations:**

- (a) **Construction and Working Principle of Lathe, milling and drilling machines:** construction includes parts of machine or sketch and explanation?
- (b) **Various Milling Operations:** is it require to address all milling operations with sketches.
- (c) **Construction and working of simple Drilling Machine:** are drilling operations included under this topic?

Please try to regroup the topics to establish teaching sequence. And also limit the topics and try to reduce the syllabus for effective delivery of contents with laboratory classes and plant visits.

Thanking you

Regards

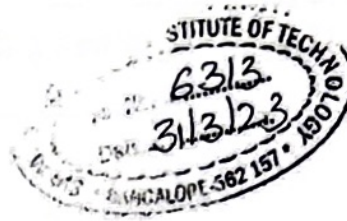
Madhukumar K

Assistant Professor



To,

The Registrar,  
Visvesvaraya Technological University,  
Belagavi.



30/03/2023

Respected Sir,

**Sub: - Review of 2022 Scheme of Teaching in Civil Engineering**

As per instructions from VTU, we have conducted a department meeting and discussed in detail on the draft of 2022 scheme (Teaching). The following are some of our suggestions:

1. In 3<sup>rd</sup> semester scheme Geology and Building Materials have been merged into one subject, if possible make it as two subjects and if not possible convert Building materials as Engineering Science course.
2. In 5<sup>th</sup> Semester Geotechnical Engineering has been made as core subject (IPCC Subject) and in this regard Geotechnical lab may be removed and replaced with water and waste engineering lab.
3. In 6<sup>th</sup> semester Transportation Engineering subject can be considered as IPCC Subject and instead of Highway Materials Lab, Software applications lab can be introduced and, in the syllabus, bar bending calculations in the excel can be included.
4. Also, in Sixth semester in the professional Electives- include Quantity Surveying and Contracts Management.
5. In 7<sup>th</sup> semester include Integrated water resources management/engineering/ground water hydraulics course as professional elective and open elective course for other engineering branches. As we are aware the state and central governments are spending crores of Rupees in reducing water losses occurring in agricultural sector which in turn reduces stress on water resources (to mechanize the farm lands). This will definitely help to create awareness among student's community in the management of precious water resources.
6. In 8<sup>th</sup> Semester under Professional Elective courses subjects like Advanced design of RCC and Steel Structures can be included.

Thanking you,  
With regards,

*Seen*

*HODs can send the  
feedback directly*

*HOD-civil  
31/3  
31/3*

*T. N. Kumar*  
HOD

CIVIL ENGINEERING DEPARTMENT  
SIR M.VIT, BANGALORE.

3/31/23, 12:58 PM

Sir.M.Visvesvaraya Institute of Technology Mail - Feed back on 2022 Scheme of Civil Engineering -SIR MVIT



HOD CIVIL <hod\_civil@sirmvit.edu>

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## Feed back on 2022 Scheme of Civil Engineering -SIR MVIT

2 messages

HOD CIVIL <hod\_civil@sirmvit.edu>  
To: sbhvtuso@yahoo.com

Fri, Mar 31, 2023 at 12:11 PM

Respected Sir,

I am herewith attaching the consolidated feedback of staff members of civil dept. with respect to the tentative of 3rd to 8th Sem 2022 Scheme.

with regards,

Dr.Ravi Kumar.H

HOD of Civil Engineering

Sir M.Visvesvaraya Institute of Technology

Bengaluru.


Head

Department of Civil Engineering

Sir M. Visvesvaraya Institute of Technology

Bengaluru - 562157

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 Feed back - SIR MVIT.pdf  
304K

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HOD CIVIL <hod\_civil@sirmvit.edu>  
To: Principal's Office <principal-int@sirmvit.edu>

Fri, Mar 31, 2023 at 12:40 PM

Respected Sir,

I am hereby attaching the feedback sent to VTU on draft scheme of 2022. This is for your kind Information

with regards,

Dr. Ravi Kumar H.

Head


Department of Civil Engineering

Sir M. Visvesvaraya Institute of Technology

Bengaluru - 562157

[Quoted text hidden]

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 Feed back - SIR MVIT.pdf  
304K



12:59 PM

Sir.M.Visvesvaraya Institute of Technology Mail - Feed back on 2022 Scheme of Civil Engineering -SIR MVIT



HOD CIVIL <hod\_civil@sirmvit.edu>

## Feed back on 2022 Scheme of Civil Engineering -SIR MVIT

Fri, Mar 31, 2023 at 12:40 PM

HOD CIVIL <hod\_civil@sirmvit.edu>

To: Principal's Office <principal-int@sirmvit.edu>

Respected Sir,  
I am hereby attaching the feedback sent to VTU on draft scheme  
of 2022. This is for your kind information  
with regards,  
Dr. Ravi Kumar H.  
Head  
Department of Civil Engineering  
Sir M. Visvesvaraya Institute of Technology  
Bengaluru - 562157

[Quoted text hidden]

 Feed back - SIR MVIT.pdf  
304K

# SIR M. VISVESVARAYA INSTITUTE OF TECHNOLOGY

Krishnadevarayanagar, Hunasamaranahalli, International Airport Road, Bangalore - 562 157.

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Ph.: 080 - 2846 7248 / 2847 7024 / 25 / 26 Fax : 080-2846 7081

E-mail : principal@sirmvit.edu, sirmvitbgl@gmail.com, Web : www.sirmvit.edu



Date: 09.11.2022

To

The Registrar I/C,  
Visvesvaraya Technological University,  
Jnana Sangama,  
Belagavi - 590 018.

Respected Sir,

Sub: Feedback regarding tentative 1<sup>st</sup> and 2<sup>nd</sup> semester 2022 scheme.

Ref: Your Circular No. VTU/BGM/BOS/A9/2021-22/3930, dated 07.11.2022

With reference to the above cited subject, we the teaching faculty of Civil Engg. Department are hereby furnishing our humble submissions as below:

1. The subjects like Elements of Civil Engineering, Elements of Mechanical Engineering and Electrical & Electronics Engineering though not required to complete a course in Circuit branches, but are very essential to understand the concepts being adopted & followed in one's day to day life [Movement of car, concept of brake application, to understand working of electric home appliances, water flow through tap / shower]. All these will help a person to tackle / solve any minor issues that arises at the root level but for major issues. This will avoid an individual being taken for a ride by the experts in a particular field similar to learning basics of computer by all of us.
2. The database for any digital process is generated mostly from civil engineering streams as it addresses every infrastructural needs the society relishes. As per AICTE, this subject has been identified as a pre-requisite for all Engineering streams as students must be aware of the basic concepts of Mechanics, which is applied to analyze engineering associated problems in a logical way using simple mathematical concepts. For OBE practices in project-based learning, blended learning and collaborative learning without the help of basic elements of civil engineering it becomes a gap in students learning if they are deprived of learning this.
3. The concept of holistic growth which, NEP document envisages will be defeated at the start itself. Also, it is not prudent to ask first year student to select the elective subject as they are not matured and get carried away by the veracity of toughness of a subject in choosing the electives. So it shall be made mandatory to learn in the first year. In this regard request respected VC and committee to retain the subject as core.
4. In regard to the subject "Computer Aided Drawing", which is taught to all the branches of engineering, in this regard significance of engineering drawing and letter writing can be included in the syllabus.

Looking forward for a favourable response from your kind selves,  
Thanking you Sir,

Enclosures

1. Staff Signatures

Yours Sincerely,

*Thiruman*  
Professor & Head  
Department of Civil Engineering  
Sir M. Visvesvaraya Institute of Technology  
Bangalore-562 157





SIR M VISVSEARAYAINSTITUTE OF TECHNOLOGY  
DEPARTMENT OF CIVIL ENGINEERING

FACULTY NAME LIST  
ACADEMIC YEAR 2022-2023

S.NO	Name	Designation	Signature
1	Dr.H. RAVI KUMAR	ASSOC. PROF & HOD INCHARGE	<i>[Signature]</i>
2	Dr. SHIVANNA S.	ASSOC. PROF	<i>[Signature]</i>
3	Mr.K.V.R PRASAD	ASSOC. PROF	<i>[Signature]</i>
4	Mrs. ANITHA JAYARAMAN	ASST. PROF	<i>[Signature]</i>
5	Mrs.PRADEEPA S.	ASST. PROF	<i>[Signature]</i>
6	Mrs.N. TAMIL SELVI	ASST. PROF	<i>[Signature]</i>
7	Mrs.RAMYA .N	ASST. PROF	<i>[Signature]</i>
8	Mrs.VYSHNAVI D.R	ASST. PROF	<i>[Signature]</i>
9	Mrs. BHAVYA .S	ASST. PROF	<i>[Signature]</i>
10	Mrs.SUBHADRA G D	ASST. PROF	<i>[Signature]</i>
11	Mr.SRI RAM	ASST. PROF	<i>[Signature]</i>

*[Signature]*  
Professor & Head  
Department of Civil Engineering  
Sir M Visvesvaraya Institute of Technology  
Bangalore-560 075

13/10/2018

To,

The Registrar,

VTU, Belgavi.

Sir,

Sub:- Review of 2018 Scheme of teaching and examination in Civil Engineering.

As per instructions from VTU, we conducted a meeting and discussed in detail the 2018 scheme of teaching and examination with respect to Civil Engineering and hereby we have listed our suggestions:

1. It is requested to reduce Mathematics subjects from 4 to 3 and accommodate one core subject,
2. Increase by one hour either in teaching or tutorial in the subject Fluid mechanics – 18CV33 as the subject is difficult to manage in allotted 3 hours,
3. In the subject Engineering geology – 18CV36, both theory and practice is combined, which is not the practice in any other subject, we suggest it to be split into one theory in third semester and one practical subject in fourth semester. It is also suggested to increase theory and practice by one hour each. As all the laboratories are for three hour duration, it will be difficult to engage students in the third hour if Geology practical are allotted two hours. Also it is suggested to include Practical examination for Geology laboratory which is the usual practice,
4. It is requested to increase by one hour either in teaching or tutorial in the subject Applied Hydraulics – 18CV43 as the subject is difficult to manage in allotted 3 hours,
5. It is requested to increase by one hour in teaching in the subject Municipal & Industrial Wastewater Engineering – 18CV55 as the subject is difficult to manage in allotted 3 hours,
6. In Professional Elective-1 under 18CV645- Railway, Harbours, Tunneling and Airports it is requested to include a topic on Metro rails,
7. It is requested to interchange the subjects 18CV51 –Construction Management & Entrepreneurship and 18CV63- Hydrology and Irrigation Engineering which will enable the students to have knowledge of Irrigation structures before survey camp,
8. For Tutorials teaching process it is suggested to solve problems and guide students for solutions of old question papers.

Thanking you,

Yours Truly,



H.P. MAHENDRA BABU

Professor & Head HOD

Department of Civil Engineering

CIVIL ENGINEERING DEPARTMENT  
SIR M. V. T. BANGALORE  
Bangalore - 560 021



≡ Gmail

Q Dr. Nagashettappa Biradar

X ≡

Compose

Inbox

901

Starred

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Sent

Drafts

68

More

Labels

As per my opinion, for IT branches basic electronic devices and their characteristics, introduction systems, basic sensors and some

With regards  
Dr Supriya V G

On Mon, 31 Oct 2022 at 15:44, supriya vedagin <supriyavg2019@gmail.com> wrote:

Dear Sir,

Thank you for your wishes and sorry for the delayed response.

Also, Thank You and it is my honour for considering me for giving suggestions on Possible syllabus for Electronics to be studied

Sir,

I am hereby attaching suggested syllabus for ECE,EEE and allied Electronics UG programmes.

Since the students admitted to 1 year BE, ECE/EEE through CET is not restricted with the PUC with PCME only, PCMB backgr

Thank You

With Regards

Dr Supriya V G

Professor, Dept. of ECE

SIR MVIT, Bangalore

On Sun, 23 Oct 2022 at 18:50, Nagashetty Biradar <nmbiradar@gmail.com> wrote:

Dear Sir,

Subject: Revamping of syllabus for BE 1 year

Happy Diwali.

I request you to give your suggestions on possible syllabus for Electronics to be studied by students in BE 1 year.

What should be different modules and syllabus? Application based electronics for non-IT branches.

What should be the syllabus for Electronics for IT related branches and non IT branches.

Mostly, syllabus is to be prepared department wise.

Your suggestions will be highly appreciated and valuable to me. Looking forward to hearing from you please.

With warm regards,

Reply

Forward

## **Electronics syllabus for ECE, EEE and Allied branches**

### **Module 1: Semiconductor Diode and Its Applications**

Semiconductor diode under forward and reverse bias, Shockley's equation, Zener and Avalanche breakdown, temperature effects, Ideal versus Practical diode, Diode resistances, Diode equivalent circuits, Zener diode characteristics.

Half-wave, Centre Tap Full-wave and bridge rectifier, ripple factor, Peak inverse voltage derivations. Shunt capacitor filter- working, output waveform and ripple factor equation, Zener diode voltage regulator.

Demo: simulation of regulated power supply and Diode clipper and clamping circuits

### **Module 2: Transistor and its applications**

Transistor construction, transistor operation, Transistor configurations - Common base and common emitter configurations – input and output characteristics. Transistor as switch and amplifying action. Gain, frequency response and band width.

Enhancement-Type MOSFETs drain and transfer characteristics;

Operational amplifiers - Operational amplifier parameters, Operational amplifier characteristics, Operational amplifier configurations, Operational amplifier circuits.

Demo: Simulation of Input and output characteristics of common emitter configuration

### **Module 3: Digital Electronics**

Boolean algebra, Logic gates, Basic Theorems and Properties of Boolean Algebra, Boolean Functions, Canonical and Standard Form, other Logical Operations. Combinational Logic Circuits: Half Adder and Full adder, Multiplexer and De-multiplexer. Sequential Circuits: RS, D, T, JK Flip-Flops, SISO Register, 3 Bit Asynchronous UP/Down counters.

Demo: Truth table verification of Logic gates and adders using simulation software.

### **Module 4: Introduction to Communication Systems:**

Modern communication system scheme, Information source, and input transducer, Transmitter, Channel or Medium – Hardwired and Soft wired, Noise, Receiver, Basic Concept of Antenna, Multiplexing, Types of communication systems. Types of modulation (only concepts) – AM, FM, Phase Modulation, Pulse Modulation, PAM, PWM, PPM, PCM.

Concept of Radio wave propagation.

Demo: Different Modulation Techniques.

### **Module 4: Embedded Systems:**

Embedded Systems – Definition, Embedded systems vs general computing systems, Classification of Embedded Systems, Major application areas of Embedded Systems,



Elements of an Embedded System, Core of the Embedded System, Microprocessor vs Microcontroller, RISC vs CISC, Harvard vs Von-Neumann

Sensors and Actuators, I/O Subsystems, LED, 7-Segment display, Opto-coupler, Stepper motor, Relay, Keyboard. Communication Interface

Demo: To switch on/off an LED using a diode in forwarding / reverse bias using a battery cell. Transistor switch circuit to operate a relay that switched off/on an LED.

Working of 7-Segment LED display using simulation software



Head of the Department  
Electronics & Communications Engineer:  
Sir M VIT Bangalore 562 157