



# ವಿಶ್ವೇಶ್ವರಯ್ಯ ತಾಂತ್ರಿಕ ವಿಶ್ವವಿದ್ಯಾಲಯ

(ವಿ ಟಿ ಯು ಅಧಿನಿಯಮ 1994 ರ ಅಡಿಯಲ್ಲಿ ಕರ್ನಾಟಕ ಸರ್ಕಾರದಿಂದ ಸ್ಥಾಪಿತವಾದ ರಾಜ್ಯ ವಿಶ್ವವಿದ್ಯಾಲಯ)

## VISVESVARAYA TECHNOLOGICAL UNIVERSITY

(State University of Government of Karnataka Established as per the VTU Act, 1994)

Phone : 0831-2498100 / 24054

Fax : 0831-2405467

Email : registrar@vtu.ac.in

Web : https://vtu.ac.in

Prof. B. E. Rangaswamy, Ph.D

REGISTRAR

REF: VTU/BGM/BOS/PG Scheme 2022/2024-25/ 601

Date: 11 MAY 2024

### CIRCULAR

Sir,

**Subject:** FEEDBACK on 2022 scheme 4th semester's AEC-SEE details regarding...

**Reference:** 2022 scheme 4th semester Scheme and Syllabus

Listed here are the 2022 scheme's Ability Enhancement Courses / Subjects (AECs) for the B.E. / B.Tech. programs' fourth semester. There is information about the SEE for each of subject/ course, including multiple-choice questions, practical, theory exams, etc.

Code in scheme	Code in Syllabus	Title of the course	SEE Type	Duration
			MCQ	1 Hour
			Practical	2 Hours
			Theory (Pattern of the question paper is same as 3 credit course)	2 Hours

The Chairpersons of respective boards have already confirmed the SEE details mentioned in the attached list.

All the teachers who are teaching the course/subject of AEC are hereby informed to go through the SEE details. Check that SEE information is appropriate for the subject. If there is any **ambiguity or doubt**, send an email to [sbhalbhavi@vtu.ac.in](mailto:sbhalbhavi@vtu.ac.in)/ [sbhvtuso@yahoo.com](mailto:sbhvtuso@yahoo.com) or before **May 18, 2024**. Based on the feedback received SEE details will be updated and the final SEE details of the AEC courses list for 4th semester B.E./B.Tech. programs will be published on **20.05.2024**.

The same copy will be sent to the examination section for the preparation of the question papers accordingly.

**Please note:** suggestions received from the teachers after May 18, 2024, will not be considered, and SEE details will not be changed once the final copy is published.

**Encl: Annexure-I and II**

Sd/-  
REGISTRAR

To,

1. **The Principals of Affiliated, Constituent Engineering Colleges under the ambit of the university**
2. **The Chairpersons/Program coordinators of the University departments at Kalaburgi, Belagavi, Mysuru, and Bengaluru**
3. **The Director, ITI SMU VTU Belagavi**

Copy to.

1. To the Hon'ble Vice-Chancellor through the secretary to VC, VTU Belagavi for information
2. The Director, ITI SMU, VTU Belagavi for information and arrange for uploading the circular on the VTU web portal
3. The Special Officer Academic Section VTU Belagavi
4. Office Copy

  
REGISTRAR  


## 2022 SCHEME

## Annexure-I

## Ability Enhancement Course / Skill Enhancement Course 2022 SCHEME

## 4th SEMESTER

S.NO.	Subject Code in Scheme	Subject Code in Syllabus	To be read as	Subject Title	SEE Options	SEE Duration
<b>Civil Engineering</b>						
1	BVCL456A	BCVL456A	BVCL456A	Building Information Modelling In Civil Engineering - Basic	Practical	2 Hour
2	BCV456B	BCV456B		GIS with Quantum GIS	MCQ	1 Hour
3	BCV456C	BCV456C		Electronic Waste Management - Issues and Challenges	MCQ	1 Hour
4	BCV456D	BCV456D		Technical Writing Skills	MCQ	1 Hour
<b>Mining Engineering</b>						
1	BMN456A	BMN456A		Finance for Professionals	MCQ	1 Hour
2	BMN456B	BMN456B	BMNL456B	Programming in Python	Practical	2 Hours
3	BMN456C	BMN456C	BMNL456C	Quantum GIS	Practical	2 Hours
4	BMN456D	BMN456D		Technical Writing Skills	MCQ	1 Hour
<b>Computer Science &amp; Engineering</b>						
1	BCS456A	BCS456A		Green IT and Sustainability	MCQ	1 Hour
2	BCS456B	BCS456B		Capacity Planning for IT	MCQ	1 Hour
3	BCS456C	BCS456C		UI/UX	MCQ	1 Hour
4	BCSL456D	BCSL456D		Technical writing using LATEX	Practical	2 Hour
<b>Computer Engineering</b>						
1	BCS456A	BCS456A		Green IT and Sustainability	MCQ	1 Hour
2	BCS456B	BCS456B		Capacity Planning for IT	MCQ	1 Hour
3	BDSL456C	BDSL456C		MERN (0:0:2)	Practical	2 Hours
4	BCSL456D	BCSL456D		Technical writing using LATEX (0:0:2)	Practical	2 Hours
<b>Artificial Intelligence &amp; Data Science</b>						
1	BDSL456A	BDSL456A		Scala (0:0:2)	Practical	2 Hours
2	BDSL456B	BDSL456B		MangoDB (0:0:2)	Practical	2 Hours
3	BDSL456C	BDSL456C		MERN (0:0:2)	Practical	2 Hours
4	BDSL456D	BDSL456D	BDSL456D	Julia (0:0:2)	Practical	2 Hours
<b>Artificial Intelligence and Machine Learning</b>						
1	BDSL456A	BDSL456A		Scala (0:0:2)	Practical	2 Hours
2	BDSL456B	BDSL456B		Mango DB (0:0:2)	Practical	2 Hours
3	BDSL456C	BDSL456C		MERN (0:0:2)	Practical	2 Hours
4	BDSL456D	BDSL456D	BDSL456D	Julia (0:0:2)	Practical	2 Hours
<b>Biotechnology</b>						
1	BBT456A	BBT456A		Hydroponics, Aquaponics and Aeroponics	MCQ	1 Hour
2	BBTL456B	BBTL456B		Water Analysis Lab	Practical	2 Hours
3	BBTL456C	BBTL456C		Extraction methods and herbal products lab	Practical	2 Hours
4	BBT456D	BBT456D		Biopesticides and Biofertilizers	MCQ	1 Hour
<b>Computer &amp; Communication Engineering</b>						
1	BCS456A	BCS456A		Green IT and Sustainability	MCQ	1 Hour

REMARKS

2	BCS456B	BCS456B		Capacity Planning for IT	MCQ	1 Hour
3	BCML456C	BCML456C		System Programming	Practical	2 Hours
4	BCSL456D	BCSL456D		Technical writing using LATEX	Practical	2 Hours
<b>Computer Science &amp; Business System</b>						
1	BCS456A	BCS456A		Green IT and Sustainability	MCQ	1 Hour
2	BCS456B	BCS456B		Capacity Planning for IT	MCQ	1 Hour
3	BCS456C	BCS456C		UI/UX	MCQ	1 Hour
4	BCB456D	BCB456D		Business Communication	MCQ	1 Hour
<b>Computer Science &amp; Design</b>						
1	BCGL456A	BCS456A	<b>BCGL456A</b>	JavaScript and jQuery: Interactive Front-End Web Development	Practical	2 Hours
2	BCGL456B	BCS456B	<b>BCGL456B</b>	Responsive Web design with Bootstrap 5.0	Practical	2 Hours
3	BCGL456C	BCS456C	<b>BCGL456C</b>	Mobile First Web design with W3.CSS	Practical	2 Hours
4	BCSL456D	BCB456D	<b>BCSL456D</b>	Technical writing using LATEX	Practical	2 Hours
<b>Computer Science &amp; Engineering (IoT)</b>						
1	BCO456A	BCO456A		Data Analytics for IOT	MCQ	1 Hour
2	BCS456B	BCS456B		Capacity Planning for IT	MCQ	1 Hour
3	BDSL456C	BDSL456C		MERN	Practical	2 Hours
4	BCS456D	BCSL456D		Technical writing using LATEX	Practical	2 Hours
<b>CSE (Artificial Intelligence &amp; Machine Learning)</b>						
1	BDSL456A	BDSL456A		Scala (0:0:2)	Practical	2 Hours
2	BDSL456B	BDSL456B		MangoDB (0:0:2)	Practical	2 Hours
3	BDSL456C	BDSL456C		MERN (0:0:2)	Practical	2 Hours
4	BCSL456D	BCSL456D		Technical writing using LATEX (0:0:2)	Practical	2 Hours
<b>CSE (Artificial Intelligence)</b>						
1	BDSL456A	BDSL456A		Scala (0:0:2)	Practical	2 Hours
2	BDSL456B	BDSL456B		MangoDB (0:0:2)	Practical	2 Hours
3	BDSL456C	BDSL456C		MERN (0:0:2)	Practical	2 Hours
4	BCSL456D	BCSL456D		Technical writing using LATEX (0:0:2)	Practical	2 Hours
<b>CSE (Cyber Security)</b>						
1	BCY456A	BCY456A		Workplace security practices	MCQ	1 Hour
2	BCY456B	BCY456B		Managed Detection and Resolution (MDR) in Cyber Security	MCQ	1 Hour
3	BCY456C	BCY456C		Problem management in Cyber Security	MCQ	1 Hour
4	BCSL456D	BCSL456D		Technical writing using LATEX (0:0:2)	Practical	2 Hours
<b>CSE (Data Science)</b>						
1	BDSL456A	BDSL456A		Scala (0:0:2)	Practical	2 Hours
2	BDSL456B	BDSL456B		MangoDB (0:0:2)	Practical	2 Hours
3	BDSL456C	BDSL456C		MERN (0:0:2)	Practical	2 Hours
4	BDSL456D	BDSL456D		Julia (0:0:2)	Practical	2 Hours
<b>CSE (IoT &amp; Cyber Security including Block Chain Technology)</b>						
1	BCO456A	BCO456A		Data Analytics for IOT	MCQ	1 Hour

2	BICL456B	BICL456B		Embedded C	Practical	2 Hours
3	BCY456C	BCY456C		Problem Management in Cyber Security	MCQ	1 Hour
4	BCSL456D	BCSL456D		Technical writing using LATEX (0:0:2)	Practical	2 Hours
<b>Data Science</b>						
1	BDSL456A	BDSL456A		Scala (0:0:2)	Practical	2 Hours
2	BDSL456B	BDSL456B		MangoDB (0:0:2)	Practical	2 Hours
3	BDSL456C	BDSL456C		MERN (0:0:2)	Practical	2 Hours
4	BDSL456D	BDSL456D		Julia (0:0:2)	Practical	2 Hours
<b>Information Science &amp; Engineering</b>						
1	BCS456A	BCS456A		Green IT and Sustainability	MCQ	1 Hour
2	BCS456B	BCS456B		Capacity Planning for IT	MCQ	1 Hour
3	BCS456C	BCS456C		UI/UX	MCQ	1 Hour
4	BCSL456D	BCSL456D		Technical Writing using LaTeX	Practical	2 Hours
<b>Computer Science</b>						
1	BCS456A	BCS456A		Green IT and Sustainability	MCQ	1 Hour
2	BCS456B	BCS456B		Capacity Planning for IT	MCQ	1 Hour
3	BCS456C	BCS456C		UI/UX	MCQ	1 Hour
4	BCSL456D	BCSL456D		Technical writing using LATEX (0:0:2)	Practical	2 Hours
<b>Electronics &amp; Communication Engg</b>						
1	BEC456A	BECL456A		Microcontrollers Lab	Practical	2 Hours
2	BEC456B			Programmable Logic Controllers	MCQ	1 Hopur
3	BEC456C	BECL456C		Octave Programming	Practical	2 Hours
4	BEC456D	BECL456D		Data Structures Lab Using C	Practical	2 Hours
<b>Biomedical Engineering</b>						
1	BBM456A	BBM456A		Programming in MATLAB	Practical	2 Hours
2	BBM456B	BBM456B		Bioinstrumentation Techniques	MCQ	1 Hours
3	BBM456C	BBM456C		Signal Conditioning Lab using Pspice / MultiSIM	Practical	2 Hours
4	BBM456D	BBM456D		Python Programming for Instrumentation	Practical	3 Hours
<b>Electrical &amp; Electronics Engineering</b>						
1	BEEL456A	BEE456A		Basics of VHDL Lab	Practical	2 Hours
2	BEEL456B	BEEL456B		Sci Lab / MATLAB for Electrical and Electronic Measurements	Practical	2 Hours
3	BEEL456C	BEEL456C		PCB Design Laboratory	Practical	2 Hours
4	BEEL456D	BEEL456D		Aurdino & Rasberry PI Based Projects	Practical	2 Hours
<b>Electronics &amp; Instrumentation Engineering</b>						
1	BEI456A	BEI456A		Programming in MATLAB / SCILAB	Practical	2 Hours
2	BEI456B	BEI456B		Virtual Instrumentation using LabView	Practical	2 Hours
3	BEI456C	BEI456C		Python Programming for Instrumentation	Practical	2 Hours
4	BEI456D	BEI456D		Arduino UNO Programming	Practical	2 Hours
<b>Electronics &amp; Telecommunication Engg</b>						
1	BEC456A	BECL456A		Microcontrollers Lab	Practical	2 Hours

Title is missing in Syllabus

2	BEC456B	BEC456B		Programmable Logic Controllers (PLC)	MCQ	1 Hopur
3	BEC456C	BECL456C		Octave Programming	Practical	2 Hours
4	BEC456D	BECL456D		Data Structures Lab Using C	Practical	2 Hours
<b>Electronics Engg (VLSI Design and Technology)</b>						
1	BVL456A	BVL456A	<b>BVLL456A</b>	Microcontroller Lab	Practical	2 Hours
2	BVL456B	BVL456B		Programmimng Logic Controllers	MCQ	1 Hour
3	BVL456C	BVL456C	<b>BVLL456C</b>	Octave Programming	Practical	2 Hours
4	BVL456D	BVL456D	<b>BVLL456D</b>	Dta Structure Lab using C	Practical	2 Hours
<b>Electronics and Communication ( Advanced Communication Technology)(EA)</b>						
1	BEA456A	BEA456A		<u>Electronic Devices</u>	MCQ	1 Hour
2	BEA456B	BEA456B		PCB Design	MCQ	1 Hour
3	BEA456C	BEA456C	<b>BEAL456C</b>	Lab VIEW Programming	Practical	2 Hours
4	BEA456D	BEA456D		Risk Management in IOT Implementation	MCQ	1 Hour
<b>Electronics and Computer Engineering</b>						
1	BUEL456A	BUEL456A		Software Tools and Technologies	Practical	2 Hours
2	BUEL456B	<b>BUE456B</b>	<b>BUEL456B</b>	Electronic Circuit Application Lab	Practical	2 Hours
3	BUEL456C	BUEL456C		Introduction to Raspbery Pi	Practical	2 Hours
4	BUEL456D	BUEL456D		Octave /Scilab for Signals	Practical	2 Hours
<b>Aeronautical Engineering</b>						
1	BAEL456A	BAE456A	<b>BAEL456A</b>	Fundamentals on Spreadsheet	Practical	2 Hours
2	BAE456B/ BAS456B			DRONE Pilot Training	MCQ	1 Hour
3	BAE456C			Concept of Augmented Reality	MCQ	1 Hour
4	BAE456D	BAE456A	<b>BAEL456D</b>	Introduction to programming with MATLAB and Python	Practical	2 Hours
<b>Aerospace Engineering</b>						
1	BAS456A	BAS456A	<b>BASL456A</b>	Introduction to Programming in Matlab	Practical	2 Hours
2	BAS456B/ BAE456B	BAS456B/ BAE456B		DRONE Pilot Training	MCQ	1 Hour
3	BAS456C	BAS456C		High Temperature and Smart Materials	MCQ	1 Hour
4	BAS456D	BAS456D		Engineering and Society	MCQ	1 Hour
<b>Agricultural Engineering</b>						
1	BAGL456A	BAGL456A		Simulation and Analysis using Ansys workbench	Practical	2 Hours
2	BAG456B	BAG456B		Economics for Engineers	MCQ	1 Hour
3	BAGL456C	BAGL456C		Introduction to Data Analytics	Practical	2 Hours
4	BAG456D	BAG456D		Human Engineering & Safety	MCQ	1 Hour
<b>Automation and Robotics</b>						
1	BRA456A	BRA456A		Introduction to AI and ML	MCQ	1 Hour
2	BRA456B	BRA456B	<b>BRAL456B</b>	Embedded C Basics	Practical	2 Hours
3	BRA456C	BRA456C		Supervisory Control & Data Acquisition System (SCADA)	MCQ	1 Hour
4	BRA456D	BRA456D	<b>BRAL456D</b>	Introduction to Raspbery Pi Controllers	Practical	2 Hours
<b>Automobile Engineering</b>						
1	BAU456A	BAU456A		Theory and Applications of Sensors and Actuators	MCQ	1 Hour

DAQ Using Lab VIEW Programmi

2	BAU456B	BAU456B	<b>BAUL456B</b>	MATLAB for Engineers (Lab)	Practical	2 Hours
3	BAU456C	BAU456C		Autonomous vehicles	MCQ	1 Hour
4	BAU456D	BAU456D		Drive Cycles of Electric Vehicles	MCQ	1 Hour
<b>Chemical Engineering</b>						
1	BCH456A	BCH456A		Data Analytics	MCQ	1 Hours
2	BCH456B	BCH456B		Entrepreneurship Development	Theory	2 Hours
3	BCH456C	BCH456C		Basics of Accounting and Taxation	Theory	2 Hours
4	BCH456D	BCH456D		Energy and Environmental Auditing	MCQ	1 Hours
<b>Industrial &amp; Production Engineering</b>						
1	BIP456A	BIP456A		Essentials of New Product Development	MCQ	1 Hours
2	BIP456B	BIP456B		An overview of Quality Improvement Tools	MCQ	1 Hours
3	BIP456C	BIP456C		Basics of Financial Management	MCQ	1 Hours
4	BIP456D	BIP456D		Basics of MATLAB (Laboratory)	Practical	2 hours
<b>Marine Engineering</b>						
1	BMR456A	BMR456A	<b>BMRL456A</b>	Advanced Programming in Python ( 0-0-2-0)	Practical	2 Hours
2	BMR456B	BMR456B		PLC and SCADA (1:0:0)	MCQ	1 Hour
3	BMR456C	BMR456C		Maritime law ( 1-0-0-0)	MCQ	1 Hour
4	BMR456D	BMR456D		Fundamentals of Virtual Reality ( 1-0-0-0)	MCQ	1 Hour
<b>Mechanical &amp; Smart Manufacturing</b>						
1	BMM456A	BMM456A		Quality Engineering	MCQ	1 Hour
2	BMM456B	BMM456B		Mechanical Design Concepts	MCQ	1 Hour
3	BMM456C	BMM456C		Special Manufacturing Processes	MCQ	1 Hour
4	BMM456D	BMM456D				
<b>Mechanical Engineering</b>						
1	BME456A	BME456A	<b>BMEL456A</b>	Introduction to AI & ML [0-0-2]	Practical	2 Hours
2	BME456B	BME456B		Digital Marketing [0-2-0]	MCQ	1 Hour
3	BME456C	BME456C	<b>BMEL456C</b>	Introduction to Data Analytics [0-0-2]	Practical	2 Hours
4	BME456D	BME456D	<b>BMEL456D</b>	Introduction to Programming in C++ [0-0-2]	Practical	2 Hours
<b>Mechatronics</b>						
1	BMT456A	BMT456A	<b>BMTL456A</b>	Mechanism Design and Animation (0-0-2)	Practical	2 Hours
2	BMT456B	BMT456B	<b>BMTL456B</b>	3-D Printing Technology (0-0-2)	Practical	2 Hours
3	BMT456C	BMT456C	<b>BMTL456C</b>	CNC programming and simulation (0-0-2)	Practical	2 Hours
4	BMT456D	BMT456D	<b>BMTL456D</b>	IoT (0-0-2)	Practical	2 Hours
<b>Robotics &amp; Automation</b>						
1	BRA456A	BRA456A		Introduction to AI and ML	MCQ	1 Hour
2	BRA456B	BRA456B	<b>BRAL456B</b>	Embedded C Basics	Practical	2 Hours
3	BRA456C	BRA456C		Supervisory Control & Data Acquisition System (SCADA)	MCQ	1 Hour
4	BRA456D	BRA456D	<b>BRAL456D</b>	Introduction to Raspberry Pi Controllers	Practical	2 Hours

in SEE MCQ wrongly typed

General Question paper  
pattern

General Question paper  
pattern

				<b>Robotics and Artificial Intelligence</b>		
1	BRI456A	BRI456A	<b>BRIL456A</b>	Spread Sheets for Engineers (0:0:2:0)	Practical	2 Hour
2	BRI456B	BRI456B	<b>BRIL456B</b>	Embedded C Basics (0:0:2:0)	Practical	2 Hour
3	BRI456C	BRI456C		Supervisory Control and Data Acquisition System (SCADA) (1:0:0:0)	MCQ	1 Hour
4	BRI456D	BRI456D	<b>BRIL456D</b>	Applications of Raspberry Pi Controllers (0:0:2:0)	Practical	2 Hour
				<b>Silk Technology</b>		
1	BTX456A	BTX456A		Processing of MMFs and Blends	<b>Theory</b>	2 Hour
2	BTX456B	BTX456B		Textured yarn Technology	Theory	2 Hours
3	BTX456C	BTX456C		Eco-friendly process of Textiles	<b>Theory</b>	2 Hours
4	BTXL456D	BTXL456D		Evaluation of textiles fibres using modern tools -lab	Practical	2 hours
				<b>Textile Technology</b>		
1	BTX456A	BTX456A		Processing of MMFs and Blends	Theory	2 Hour
2	BTX456B	BTX456B		Textured yarn Technology	Theory	2 Hours
3	BTX456C	BTX456C		Eco-friendly process of Textiles	Theory	2 Hour
4	BTXL456D	BTXL456D		Evaluation of textiles fibers using modern tools -lab	Practical	2 hours
				<b>Smart Agritech</b>		
1	BSAL456A	BSAL456A		Mastering MS - Office ( MS Word, Excel, PPT, Outlook)	Practical	2 Hours
2	BSAL456B	BSAL456B		Animation in agriculture	Practical	2 Hours
3	BSAL456C	BSAL456C		Principles of Soil Science	Practical	2 Hours
4	BSA456D	BSA456D		Technical writing skills	MCQ	1 Hour

General question paper  
General question paper  
General question paper

General question paper  
**Refer Sy in Silk Technology**  
General question paper

## CIE and SEE marks entry details on VTU web portal for AEC subjects

Type of the SEE	About CIE	About SEE
MCQ	Actual Marks scored out of 50 are entered on the VTU portal by the concerned teacher	SEE paper shall be set for 50 questions, each of the 01 marks. The pattern of the question paper is MCQ (multiple choice questions). The time allotted for SEE is <b>01 hour</b> . The student has to secure a minimum of 35% of the maximum marks meant for SEE. <b>Actual Marks are entered on VTU web portal by the evaluator as per maximum marks of question paper (No scale down by system further).</b>
Practical	Actual Marks scored out of 50 are entered on the VTU portal by the concerned teacher	SEE for practical shall be evaluated for 100 marks and <b>scored marks out of 100 marks are entered on the VTU portal by the examiner (System will scale down the marks to 50).</b>
General Theory Question paper	Actual Marks scored out of 50 are entered on the VTU portal by the concerned teacher	<ul style="list-style-type: none"> <li>• The question paper will have ten questions. Each question is set for 10 marks.</li> <li>• There will be 2 questions from each module. Each of the two questions under a module may or may not have the sub-questions (with maximum sub-questions of 02, with marks distributions 5+5, 4+6, 3+7).</li> <li>• The students have to answer 5 full questions, selecting one full question from each module.</li> </ul> <b>Digital Valuation is done and marks are evaluated according to question paper defragmentation (No scale-down by the system further)</b>