



**BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT**

(Autonomous Institute affiliated to VTU, Belagavi, Approved by AICTE New Delhi)

Yelahanka, Bengaluru 560064



**Bachelor of Engineering**

**Department of Computer Science and Engineering**

**III and IV Semester Scheme and Syllabus  
2022 Scheme**

**Effective from the AY 2023-24**

Approved in the BoS meeting held on 13/10/2023

## **Vision and Mission of the Department**

### **Vision:**

To develop technical professionals acquainted with recent trends and technologies of computer science to serve as valuable resource for the nation/society.

### **Mission:**

Facilitating and exposing the students to various learning opportunities through dedicated academic teaching, guidance and monitoring.

## Program Educational Objectives (PEOs)

### PEO'S

<b>PE01</b>	Lead a successful career by designing, analyzing and solving various problems in the field of Computer Science & Engineering.
<b>PE02</b>	Pursue higher studies for enduring edification.
<b>PE03</b>	Exhibit professional and team building attitude along with effective communication.
<b>PE04</b>	Identify and provide solutions for sustainable environmental development.

## Program Specific Outcomes (PSOs)

### PSO'S

<b>PSO-1</b>	Analyze the problem and identify computing requirements appropriate to its solution.
<b>PSO-2</b>	Apply design and development principles in the construction of software systems of varying complexity.



Date: 16.10.2023

**CONTINUOUS INTERNAL EVALUATION AND SEMESTER END EXAMINATION  
PATTERN: 2022 BATCH ONWARDS**

All students of 2022 scheme onwards are hereby informed to note the following with reference to Continuous internal evaluation and Semester end examination: The Weightage of Continuous Internal Evaluation (CIE) is 50% and for Semester End Exam (SEE) is 50%. The Minimum passing mark for the CIE is 40% of the Maximum marks (20 marks out of 50) and for the SEE minimum passing mark is 35% of the maximum marks (18 out of 50 marks). The student is declared as a pass in the course if he/she secures a minimum of 40% (40 marks out of 100) in the sum total of the CIE (Continuous Internal Evaluation) and SEE (Semester End Examination) taken together.

IPCC COURSES: 4 CREDITS AND 3 CREDITS						
Evaluation Type		Internal Assessments (IAs)	Test/ Exam Marks Conducted for	Marks to be scale down to	Min. Marks to be Scored	Evaluation Details
Theory Component	CIE – IA Tests	CIE – Test 1 (1.5 hr)	40	15	06	Average of two internal assessment tests each of 40 marks, scale down the marks scored to 15 marks
		CIE – Test 2 (1.5 hr)	40			
	CIE – CCAs (Comprehensive Continuous Assessment)	CCA -1	10	10	04	Any two assessment methods as per clause 22OB4.2 of regulations (if assessment is project based, then one assessment method may be adopted)
		CCA-2	10			
	Total CIE Theory				25	10
Practical Component	CIE - Practical		-	15	06	Conduction of experiments and preparation of laboratory records etc.
	CIE Practical Test		50	10	04	One test after all experiment's to be conducted for 50 marks
	Total CIE Practical			25	10	Scale down marks of experiments, record and test to 25
Total CIE Theory + Practical				50	20	
SEE			100	50	18	SEE exam is a theory exam, conducted for 100 marks, scored marks are scaled to 50 marks
CIE + SEE				100	40	
The minimum marks to be secured in CIE to appear for SEE shall be 10 (40% of maximum marks-25) in the theory component and 10 (40% of maximum marks -25) in the practical component. The laboratory component of the IPCC shall be for CIE only. However, in SEE, the questions from the laboratory component shall be included in their respective modules only.						



Professional Core Course (PCC) courses: 03 and 02 Credit Courses						
Evaluation Type		Internal Assessments (IAs)	Test/ Exam Marks Conduct ed for	Marks to be scale down to	Min. Marks to be Scored	Evaluation Details
Theory Component	CIE – IA Tests	CIE – Test 1 (1.5 hr)	40	25	10	Average of two internal assessment tests each of 40 marks, scale down the marks scored to 25 marks.
		CIE – Test 2 (1.5 hr)	40			
	CIE - CCAs	CCA -1	25	25	10	Any two assessment methods as per clause 220B4.2 of regulations (if it is project based, one CCA shall be given )
		CCA-2	25			
	Total CIE Theory			50	20	
SEE			100	50	18	SEE exam is a theory exam, conducted for 100 marks, scored marks are scaled down to 50 marks
CIE + SEE				100	40	

NON IPCC COURSES: 01 Credit Courses-MCQ						
Evaluation Type		Internal Assessments (IAs)	Test/Exam Marks Conducted for	Marks to be scale down to	Min. Marks to be Scored	Evaluation Details
Continuous Internal Evaluation on Component	CIE – IA Tests (MCQs)	CIE – Test 1 (1 hr)	40	25	10	Average of two internal assessment tests each of 40 marks, scale down the marks scored to 25 marks
		CIE – Test 2 (1 hr)	40			
	CIE - CCAs	CCA -1	25	25	10	Any two assessment methods as per clause 220B4.2 of regulations
		CCA-2	25			
	Total CIE Theory				50	20
SEE (MCQ Type)				50	18	MCQ-type question papers of 50 questions with each question of 01 mark, examination duration is 01 hour
CIE + SEE				100	40	

Professional Core Course Laboratory (PCCL) course- 01 credit					
Evaluation Type	Internal Assessments (IAs)	Test/ Exam Marks Conducted for	Marks to be scale down to	Min. Marks to be Scored	Evaluation Details
Continuous Internal Evaluation	CIE - Practical	-	30	-	Each experiment is to be evaluated for conduction with an observation sheet and record write-up. Rubrics for the evaluation of the journal/write-up for hardware/software experiments shall be approved by the PAC and are made known to students at the beginning of the practical session. Record should contain all the specified experiments in the syllabus. Total marks scored by the students are scaled down to 30 marks (60% of maximum marks).
	CIE Practical Test	100	20	-	Department shall conduct a test of 100 marks after the completion of all the experiments listed in the syllabus. In a test, test write-up, conduction of experiment, acceptable result, and procedural knowledge will carry a weightage of 60% and the rest 40% for viva-voce. The suitable rubrics can be designed to evaluate each student's performance and learning ability by PAC. The marks scored shall be scaled down to 20 marks (40% of the maximum marks).
	<b>Total CIE</b>	-	<b>50</b>	<b>20</b>	
Semester End Examination		100	<b>50</b>	<b>18</b>	General rubrics suggested for SEE are mentioned here, writeup-20%, Conduction procedure and result - 60%, Viva-voce 20% of maximum marks. SEE for practical shall be evaluated for 100 marks and scored marks shall be scaled down to 50 marks (Rubrics shall be approved by the PAC)
<b>CIE+SEE</b>		<b>100</b>	<b>50</b>	<b>40</b>	

Computer Aided Engineering Drawing (BCEDK103/BCEDK203): 3 credit								
Evaluation Type		Topics/Modules	Computer Printout	Preparatory Sketch	Max Marks	Total Marks	Marks to be Scaled Down to	Min Marks to Pass
CIE	Sketchbook and CAD Modelling	Projection of Points	10	05	15	200	20	08
		Projection of Lines	10	10	20			
		Projection of Planes	20	15	35			
		Projection of Solids	40	20	60			
		Isometric Projections	20	15	35			
		Development of lateral surfaces	20	15	35			
	Test 1	Module 1 & 2	24	06	30	70	20	08
		Module 3	32	08	40			
	Test 2	Module 3	32	08	40	70		
		Module 4	24	06	30			
	CCA 1	Module 5	08	02	10	10	10	04
	CCA 2	Module 5	08	02	10			
CIE Total							50	20
SEE		Module 1 & 2	24	06	30	100	50	20
		Module 3	32	08	40			
		Module 4	24	06	30			
CIE + SEE							100	40

Computer Aided Modelling for Manufacturing (BME305): 1 credit								
Evaluation Type		Module	Computer Printout	Preparatory Calculations / Sketch	Max Marks	Total Marks	Marks to be Scaled Down to	Min Marks to Pass
CIE	Sketchbook and CAD Modeling	Module 1	60	30	90	200	20	08
		Module 2	40	20	60			
		Module 3	40	10	50			
	Test 1	Module 1	20	10	30	60	20	08
		Module 2	20	10	30			
	Test 2	Module 1	20	10	30	60		
		Module 3	20	10	30			
	CCA	Module 1	30	10	40	40	10	04
	Total CIE							50
SEE		Module 1	30	10	40	100	50	20
		Module 2	20	10	30			
		Module 3	20	10	30			
CIE + SEE							100	40



## 220B 4.2 Continuous Internal Evaluation (CIE)

1) For a theory course, with an L-T-P distribution of L-0-0, the CIE will carry a maximum of 50% weightage of the total marks of a course. Before the start of the Academic session of each Semester, a faculty may choose for his course Internal Assessment Test and a minimum of two of the following assessment methods with suitable weightage for each

- i) Assignments (Individual and /or Group)
- ii) Seminars
- iii) Oral/ Online Quizzes
- iv) Group Discussions
- v) Case studies/ Case lets
- vi) Practical orientation on Design Thinking, Creativity & Innovation
- vii) Participatory & Industry – integrated learning
- viii) Practical activities/ problem-solving exercises
- ix) Class presentations
- x) Analysis of Industry/ Technical/ Business Reports
- xi) Reports on Guest Lectures/ Webinars/ Industrial Visits
- xii) Industrial/ Social/ Rural projects
- xiii) Participation in Seminars/ Academic Events/ Symposia, etc.
- xiv) Any other academic activity

  
CoE 18/10/2023

  
Principal 18/10

  
Dean (AA) 18.10.2023





# BMS INSTITUTE OF TECHNOLOGY AND MANAGEMENT

(Autonomous Institute affiliated to VTU)

Scheme of Teaching and Examination: Effective from AY 2022- 23

Choice Based Credit System (CBCS)

## UG PROGRAM: Department of Computer Science and Engineering

## IV SEMESTER

Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits
					Theory Lecture	Tutorial	Practical / Drawing	SDA	Duration	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	PCC/BSC	BCS401	Analysis & Design of Algorithms	TD: CS PSB : CS	3	0	0		03	50	50	100	3
2	IPCC	BCS402	Microcontrollers	TD: CS PSB : CS	3	0	2		03	50	50	100	4
3	IPCC	BCS403	Database Management Systems	TD: CS PSB : CS	3	0	2		03	50	50	100	4
4	PCCL	BCSL404	Analysis & Design of Algorithms Lab	TD: CS PSB : CS	0	0	2		03	50	50	100	1
5	ESC	BCS405x	ESC/ETC/PLC	TD: CS/Maths PSB : CS/Maths	2	2	0		03	50	50	100	3
6	AEC/ SEC	BCS456x	Ability Enhancement Course/Skill Enhancement Course-IV	TD: Concerned department PSB:CS	If the course is Theory				01	50	50	100	1
					1	0	0						
					If the course is a lab				02				
					0	0	2						
7	BSC	BBOK407	Biology For Engineers	TD / PSB: BT, CHE,	2	0	0		03	50	50	100	2
8	UHV	BUHK408	Universal human values course	Any Department	1	0	0		01	50	50	100	1
9	MC	BNSK459	National Service Scheme (NSS)	NSS coordinator	0	0	2			100	---	100	0
		BPEK459	Physical Education (PE) (Sports and Athletics)	Physical Education Director									
		BYOK459	Yoga	Yoga Teacher									
		BMUK459	Music	Music Teacher									
		BNCK459	National Credit Corps (NCC)	NCC Coordinator									
Total										500	400	900	19

**PCC:** Professional Core Course, **PCCL:** Professional Core Course laboratory, **UHV:** Universal Human Value Course, **MC:** Mandatory Course (Non-credit), **AEC:** Ability Enhancement Course, **SEC:** Skill Enhancement Course, **L:** Lecture, **T:** Tutorial, **P:** Practical **S= SDA:** Skill Development Activity, **CIE:** Continuous Internal Evaluation, **SEE:** Semester End Evaluation. K :This letter in the course code indicates common to all the stream of engineering.

**Ability Enhancement Course / Skill Enhancement Course – IV**

BCS456A	Green IT and Sustainability	BCS456C	UI/UX (Lab)
BCS456B	Capacity Planning for IT	BCS456D	Technical writing using LATEX (Lab)

**Engineering Science Course (ESC/ETC/PLC)**

BCS405A	Discrete Mathematical Structures	BCS405C	Optimization Technique
BCS405B	Graph Theory	BCS405D	Linear Algebra

**Professional Core Course (IPCC):** Refers to Professional Core Course Theory Integrated with practical of the same course. Credit for IPCC can be 04 and its Teaching– Learning hours (L : T : P) can be considered as (3 : 0 : 2) or (2 : 2 : 2). The theory part of the IPCC shall be evaluated both by CIE and SEE. The practical part shall be evaluated by only CIE (no SEE). However, questions from the practical part of IPCC shall be included in the SEE question paper. For more details, the regulation governing the Degree of Bachelor of Engineering /Technology (B.E./B.Tech.) 2022-23

**National Service Scheme /Physical Education/Yoga:** All students have to register for any one of the courses namely National Service Scheme (NSS), Physical Education (PE)(Sports and Athletics), and Yoga(YOG) with the concerned coordinator of the course during the first week of III semesters. Activities shall be carried outbetween III semester to the VI semester (for 4 semesters). Successful completion of the registered course and requisite CIE score is mandatory for the award of the degree. The events shall be appropriately scheduled by the colleges and the same shall be reflected in the calendar prepared for the NSS, PE, and Yoga activities. These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses is mandatory for the award of degree.