

CANARA ENGINEERING COLLEGE

(An Autonomous Institution)

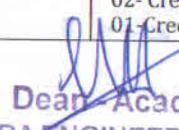
Scheme of Teaching and Examinations (2025)													
Outcome-Based Education (OBE) and Choice-Based Credit System (CBCS)													
(Effective from the academic year 2025-26)													
I Semester													
Sl. No	Course and Course Code		Course Title	TD/PSB	Teaching Hours/Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	SAAE	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	ASC	1BMxAS101	Applied Mathematics -I (Stream Specific)	Maths Dept	3	2	0		03	50	50	100	04
2	ASC(IC)	1BPxAS102	Applied Physics (Stream Specific)	PHY Dept	3	0	2		03	50	50	100	04
3	ESC	1BDxES103	Computer-Aided Engineering Drawing (Stream Specific)	ME Dept	2	0	2		03	50	50	100	03
4	ESC	1BxxES14x	Engineering Science Courses-I	Respective Engg Dept	3	0	0		03	50	50	100	03
5	PSC	1BxxPS15x	Programme Specific Course	Respective Engg dept	3	0	0		03	50	50	100	03
6	AEC (NCMC)	1BSHNC106	Soft Skills	Humanities Dept	1	0	0		-	100	---	100	PP
7	PSC	1BxxPB17x	Program-Specific Course Lab	Respective Engg Dept	0	0	2		02	50	50	100	01
8	AEC/SDC	1BSHSL108	Innovation and Design Thinking Lab, (Project-based learning)	Respective Dept	0	0	2		02	50	50	100	01
9	HSMS	1BSHHM191 / 1BSHHM192	Samskrutika Kannada/ Balake Kannada	Humanities Dept	1	0	0		01	50	50	100	01
TOTAL					16	02	08		20	500	400	900	20
10	AICTE Activity Points (students have to earn 100 activity points between 01 to 08 semester)							Compulsory requirement for the award of a degree					

ASC-Applied Science Course, IC - Integrated Course (Practical Course Integrated with Theory Course), PSC-Programme Specific Course, ESC- Engineering Science Courses, ETC- Emerging Technology Course, AEC- Ability Enhancement Course, NCMC: Non Credit Mandatory Course, PP : (Pass/Pass) is assigned to a noncredit course. "PP" represents pass in course provided students have successfully completed the CIE requirements. Otherwise, "NP-not pass shall be awarded. "PP" is essential for the award of the degree. PLC(IC)- Programming Language Course (Integrated Course), AEC/SDC- Ability Enhancement Course/Skill Development course, TD/PSB- Teaching Department / Paper Setting Board, HSMS-Humanity, Social Science and management Course, S- (SAAE) Students' Academic Activity Engagement Hours, CIE -Continuous Internal Evaluation, SEE-Semester End Examination,

Credit Definition:

1-hour Lecture (L) per week=1Credit
 2-hours Tutorial(T) per week=1Credit
 2-hours Practical / Drawing (P) per week=1Credit

04-Credit courses are designed for 50 hours of Teaching-Learning Session
 04-Credit (IC) is designed for 40 hours' theory and 10-12 hours of practical sessions
 03-Credit courses are designed for 40 hours of Teaching-Learning Session
 02- Credit courses are designed for 25 hours of Teaching-Learning Session
 01- Credit courses are to be designed for 12 hours of Teaching-Learning sessions


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Applied Mathematics-I					Applied Physics				
Code	Title	L	T	P	Code	Title	L	T	P
1BMMAS101	Differential Calculus and Linear Algebra: ME Stream	3	2	0	1BPMAS102	Physics of Materials (Mech stream)	3	0	2
1BMEAS101	Differential Calculus and Linear Algebra: EEE stream	3	2	0	1BPEAS102	Quantum Physics and Electronics Sensors (EEE stream)	3	0	2
1BMCAS101	Calculus and Linear Algebra: CSE Stream	3	2	0	1BPCAS102	Quantum Physics and Applications (CSE stream)	3	0	2
Computer-Aided Engineering Drawing					Engineering Science Courses-I(ESC-I)				
1BDMES103	Computer-Aided Engineering Drawing for ME stream	2	0	2	1BCVES141	Building Sciences and Mechanics	3	0	0
1BDEES103	Computer-Aided Engineering Drawing for EEE stream	2	0	2	1BEEES142	Introduction to Electrical Engineering	3	0	0
1BDCES103	Computer-Aided Engineering Drawing for CSE stream	2	0	2	1BECES143	Introduction to Electronics & Communication Engineering	3	0	0
					1BMEES144	Introduction to Mechanical Engineering	3	0	0
					1BCBES145	Essentials of Information Technology	3	0	0
Programme Specific Courses (PSC)					Program-Specific Course Lab (PSCL)				
1BECPS151	Fundamentals of Electronics & Communication Engineering	3	0	0	1BECPB171	Fundamentals of Electronics & Communication Engineering Lab	0	0	2
1BMEPS152	Elements of Mechanical Engineering	3	0	0	1BMEPB172	Elements of Mechanical Engineering Lab	0	0	2
1BCSPS153	Programming in C	3	0	0	1BCSPB173	C Programming Lab	0	0	2
<p>Integrated courses (IC), combining theory with practical components.</p> <p>(i) Theory sessions shall be conducted for 3 hours per week, while the practical sessions shall be conducted for 2 hours per week.</p> <p>(ii) Theory components shall be evaluated through both Continuous Internal Evaluation (CIE) and Semester End Examination (SEE).</p> <p>(iii) The practical component shall be assessed only through CIE.</p> <p>The Mathematics/Physics courses shall be taught by a single faculty member per session, with no sharing of the course (subject) modules.</p> <p>The tutorial sessions for the mathematics course shall be conducted in the laboratory environment using Maxima/Mathematica/ Python/Scilab/MATLAB software to enhance computational understanding and application skills (one hour for problem solving and one hour laboratory session).</p> <p>All students admitted to the engineering program have to complete Applied Mathematics-I and Applied Mathematics-II in I and II semesters by selecting the courses prescribed for</p>									


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their stream, viz. CV, ME, EEE or CSE, under the heading Mathematics –I and Mathematics-II.

Those who have completed the physics course under the heading Applied Physics in I semester have to select the prescribed stream wise chemistry course under the heading Applied chemistry during II semester.

Programme Specific Courses (PSC): Programme Specific Courses (PSC) are a set of core courses tailored to a specific branch or discipline of engineering in which a student is enrolled (e.g., Mechanical Engineering, Computer Science, Civil Engineering, etc.). These courses are intended to provide students with in-depth knowledge and specialized skills essential for professional competence in the chosen field. Students must select and complete the course from this group that **corresponds to their admitted program stream**. Similarly, students are also required to choose and pass laboratory courses that are specific to their stream from the **Programme Specific Courses Laboratory (PSCL) group**.

Engineering Sciences Courses-I(ESC-I): These courses are designed to broaden the technical knowledge of students beyond their core area of study. These courses enable students to gain a foundational understanding of engineering principles from other stream courses. Students are required to select and complete two courses that are not belong to their admitted program stream. For example, a student admitted to the any programme of the Civil Engineering stream should not select Introduction to Building Sciences but any other two. One course shall be selected under ESC-I and another course under ESC-II. The two courses must be different from the other.

Computer-Aided Engineering Drawing: The courses under this category are stream-specific. Students must select and complete the course that corresponds to their admitted engineering stream.

The Student Induction Programme (SIP), initiated by the All India Council for Technical Education (AICTE), is designed to help newly admitted students in technical institutions transition smoothly into the higher education environment. It aims to familiarize students with the institutional culture, foster connections with peers and faculty, and provide a foundation for holistic learning. Activities under SIP may include Physical Activities, Creative Arts, Universal Human Values, Literary Events, Proficiency Modules. Lectures shall be by Eminent Personalities, Local Area Visits, Department/Branch Familiarization, and Innovation-related sessions.

The first year of the Engineering programmes is composed of I semester, II semester and Summer Semester. SIP activities shall be scheduled in the afternoon sessions during the first week of class commencement of I and II semesters only.

The specific programmes to be conducted will be notified separately by the University via the academic calendar or through a separate notification.

AICTE Activity Points Requirement for BE/B.Tech. Programmes

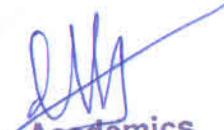
As per AICTE guidelines (refer Chapter 6 – *AICTE Activity Point Program, Model Internship Guidelines*), in addition to academic requirements, students must earn a specified number of **Activity Points** to be earned is to be eligible for the award of their degree.

- **Regular students** admitted to a 4-year degree program must earn **100 Activity Points**.
- **Lateral entry students** (joining from the second year) must earn **75 Activity Points**.
- **Students transferred** from other universities directly into the fifth semester must earn **50 Activity Points** from the date of entry into VTU.

These Activity Points are **non-credit** and will not be considered for **the SGPA/CGPA** or be used for **vertical progression**. However, they are mandatory for the **award of the degree**, and the points earned will be reflected on the **eighth semester Grade Card**.

The hours spent for earning the activity points shall not be counted for regular attendance requirements. Students can accumulate these points at any time during their program, including on weekends, holidays, and vacations starting from the year of admission, provided they meet the minimum hours of engagement prescribed for each activity.

If a student fails to earn the required Activity Points, the eighth-semester Grade Card will be withheld until the requirement is fulfilled. Consequently, the degree will be awarded only after the Grade Card has been released.


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Sl No	Stream	UG Programmes under the stream with code
1	Civil Engineering Stream (CV)	(1) Civil engineering (CV), (2) Mining Engineering (MI)
2	Mechanical Engineering Stream (ME)	(1)Aeronautical Engineering (AE), (2)Aerospace Engineering (AS),(3) Agricultural Engineering (AG),(4)Automation and Robotics (AR), (5)Automobile Engineering (AU), (6)Chemical Engineering (CH), (7) Industrial & Production Engineering (IP), (8)Industrial Engineering & Management (IM), (9) Manufacturing Science and Engineering (MS), (10) Marine Engineering (MR), (11) Mechanical & Smart Manufacturing (MM), (12) Mechanical Engineering (ME), (13)Mechatronics (MT), (14) Petrochem Engineering (PC), (15)Robotics & Automation (RA),(16) Robotics and Artificial Intelligence (RI),(17)Silk Technology (ST), (18) Textile Technology (TX),(19)Energy Engineering (ER),(20) Smart Agritech (SA).
3	Electrical and Electronics Engineering Stream (EEE)	(1)Electronics & Communication Engineering (EC), (2)Biomedical Engineering (BM), (3)Electrical & Electronics Engineering (EE), (4) Electronics & Instrumentation Engineering (EI),(5) Electronics & Telecommunication Engineering (ET),(6) Industrial IoT (IO), (7) Medical Electronics Engineering (ML),(8) Electronics Engineering (VLSI Design and Technology) (VL),(9) Electronics & Communication(Advanced Communication Technology) (EA),(10) Electronics & Computer Engineering (UE).
4	Computer Science and Engineering Stream (CSE)	(1) Computer Science and Engineering (CS), (2) Computer Engineering (CE), (3)Artificial Intelligence and Data Science (AD), (4) Artificial Intelligence and Machine Learning (AI),(5) Biotechnology (BT),(6)Computer & Communication Engineering (CM), (7) Computer Science and Business System (CB),(8) Computer Science and Design (CG),(9) Computer Science and Engineering (IoT) (CO), (10)CSE(Artificial Intelligence and Machine Learning) (CI),(11) CSE(Artificial Intelligence) (CA),(12) CSE(Cyber Security) (CY), (13)CSE(Data Science) (CD),(14) CSE(IoT and Cyber Security including Block Chain Technology) (IC), (15) Data Science (DS), (16) Information Science & Engineering (IS),(17) Computer Science (CR).


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Scheme of Teaching and Examinations (2025)
 Outcome-Based Education (OBE) and Choice-Based Credit System (CBCS)
 (Effective from the academic year 2025-26)

II Semester (For the students who have studied Physics group in I semester)

Sl. No	Course and Course Code		Course Title	TD/PSB	Teaching Hours/Week				Examination				Credits
					Theory Lecture	Tutorial	Practical/ Drawing	SAAE	Duration in hours	CIE Marks	SEE Marks	Total Marks	
					L	T	P	S					
1	ASC	1BMxAS201	Applied Mathematics -II (Stream Specific)	Maths Dept	3	2	0		03	50	50	100	04
2	ASC(IC)	1BCxAS202	Applied Chemistry (Stream Specific)	CHE Dept	3	0	2		03	50	50	100	04
3	ETC	1BAIET203	Introduction to AI and Applications	Any Dept	3	0	0		03	50	50	100	03
4	ESC	1BxxES24x	Engineering Science Course-II	Respective Engg Dept	3	0	0		03	50	50	100	03
5	PLC(IC)	1BxxLC25x	Programming Language Course	CSE & allied Dept	3	0	2		03	50	50	100	04
6	AEC	1BSHAE206	Communication Skills	Humanities Dept	1	0	0		02	50	50	100	01
7	AEC (NCMC)	1BSHAE207	Indian Constitution & Engineering Ethics	Humanities Dept	1	0	0		01	100	0	100	PP
8	AEC/SDC	1BSHPJ208	Interdisciplinary Project-Based Learning	Respective Dept (Multiple Dept)	0	0	0	2	02	50	50	100	01
TOTAL					17	02	05	02	20	450	350	800	20

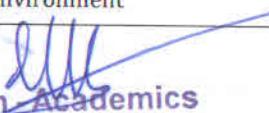
ASC-Applied Science Course, **IC** - Integrated Course (Practical Course Integrated with Theory Course), **ESC**- Engineering Science Courses, **PLC(IC)**- Programming Language Course (Integrated Course), **AEC**- Ability Enhancement Course, **NCMC**: Non Credit Mandatory Course, **TD/PSB**- Teaching Department / Paper Setting Board, **HSMC**- Humanity, Social Science and management Course, **S- (SAAE)**- Students' Academic Activity Engagement Hours, **AEC/SDC**- Ability Enhancement Course/Skill Development course, **CIE** -Continuous Internal Evaluation, **SEE**- Semester End Examination, **PP** : (Pass/Pass) is assigned to a noncredit course. "PP" represents pass in course provided students have successfully completed the CIE requirements. Otherwise, "NP-not pass shall be awarded. "PP" is essential for the award of the degree

Integrated courses (IC), combining theory with practical components.

The theory sessions shall be conducted for 3 hours per week, while the practical sessions shall be conducted for 2 hours per week.

- The theory component will be evaluated through both Continuous Internal Evaluation (CIE) and Semester End Examination (SEE).
- The practical component will be assessed only through CIE.

Communication Skills: This course shall be conducted in a laboratory environment


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Applied Mathematics-II					Applied Chemistry				
Code	Title	L	T	P	Code	Title	L	T	P
1BMMAS201	Multivariable Calculus and Numerical Methods: ME Stream	3	2	0	1BCMAS202	Applied Chemistry for Advanced Metal Protection and Sustainable Energy Systems (ME)	3	0	2
1BMEAS201	Calculus, Laplace Transform And Numerical Techniques: EEE stream	3	2	0	1BCEAS202	Applied Chemistry for Emerging Electronics and Futuristic Devices (EEE, ECE)	3	0	2
1BMCAS201	Numerical Methods: CSE Stream	3	2	0	1BCCAS202	Applied Chemistry for Smart Systems (CSE)	3	0	2
Engineering Sciences Courses II(ESC-II)					Programming Language Courses (PLC)				
1BCVES241	Building Sciences & Mechanics	3	0	0	1BISLC251	Introduction to C Programming (for non-IT programmes)	3	0	2
1BEEES242	Introduction to Electrical Engineering	3	0	0	1BCDLC252	Python Programming (For CSE and allied programmes)	3	0	2
1BECES243	Introduction to Electronics & Communication Engineering	3	0	0					
1BMEES244	Introduction to Mechanical Engineering	3	0	0					
1BCBES245	Essentials of Information Technology	3	0	0					
<p>The Mathematics/Chemistry courses shall be taught by a single faculty member per session, with no sharing of the course (subject) modules. The tutorial sessions for the mathematics course shall be conducted in the laboratory environment using Maxima/Mathematica/ Python/Scilab/MATLAB software to enhance computational understanding and application skills.</p> <p>Students admitted to a specific engineering stream are required to select and successfully complete Applied Mathematics-II and Applied Chemistry courses that are aligned to their program stream.</p> <p>Engineering Sciences Courses-II(ESC-II): These courses are designed to broaden the technical knowledge of students beyond their core area of study. These courses enable students to gain a foundational understanding of engineering principles from other disciplines. Students are required to select and complete a course under ESC-II that does not belong to their admitted program stream. Students should select a course other than that was selected under ESC-I and other than course not belonging to their stream.</p> <p>For the course Interdisciplinary Project (BPRJ259), it is mandatory to form a team comprising students from multiple engineering disciplines. For example, a project team may include students from Mechanical Engineering, Electronics and Communication Engineering (ECE), and Computer Science and Engineering (CSE), working collaboratively to design and implement the project.</p>									

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