

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnana Sangam, Machhe, Belagavi-590018



Scheme of Teaching and Examinations 2026

Outcome-Based Education (OBE) and Choice-Based Credit System (CBCS)
(Effective from the academic year 2026-27)

B.Sc.(Hon). Program														
Scheme of Teaching and Examinations 2026														
Outcome-Based Education (OBE) and Choice-Based Credit System (CBCS) (Effective from the academic year 2026-27)														
IV SEMESTER (Chemistry Major)														
Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching & Learning Scheme					Examination				Credits
					CI		LI	# TW & SL	TH/S	Duration in	CIE Marks	SEE Marks	Total Marks	
					L	T	P							
1	DC	4BSC41	Chemistry of Environmental Systems	Chemistry	42	28	0	20	90	3	50	50	100	3
2	DC	4BSC42	Chemistry of Main Group Elements (s- and p-Block) and Noble Gases	Chemistry	42	28	0	20	90	3	50	50	100	3
3	SSE	4BSS43X	Stream Specific Elective	Physics / Mathematics	42	28	0	20	90	3	50	50	100	3
4	DC	4BSCL44	Organic Chemistry Lab	Chemistry	0	0	42	18	60	3	50	50	100	2
5	OEC	4BSO45X	Open elective course	Maths/IT Department	28	14	0	18	60	2	50	50	100	2
6	SEC	4BSC46	Industrial Chemical Safety	Chemistry	28	14	0	18	60	2	50	50	100	2
7	AEC	4BSC47	Constitution of India and Political Science	HSMC	28	14	0	18	60	2	50	50	100	2
8	SEC	4BSC48X	Online course (Chemistry related)	MOOCS/ VTU/NPTEL/COURSERA	0	0	0	60	60	0	50	50	100	2
9	AEC	4BSC49	Indian Knowledge System	Any Department	14	0	0	16	30	1	50	50	100	1
Total									600		450	450	900	20

TH/S- Total Hours per Semester, TW & SL- Term Work & Self Learning

Note:

(i) **DC:** Discipline Course, **SEC:** Skill Enhancement Course, **AEC:** Ability Enhancement Course, **HSMC:** Humanity, Social Science and Management. **SSE:** Stream Specific Elective
OEC: Open Elective Course

(ii) **Summer Internship – 1** All the students shall undergo a mandatory internship of 03 weeks during the intervening period of IV and V semesters. The Internship shall be slated for CIE only and will not have SEE. The grade earned through CIE shall be included in the V semester grade card. A Viva-voce, Report submission and Presentation shall be conducted during Vth semester and the prescribed credit shall be included in the Vth semester. The summer internship -1 shall be considered as a head of passing, vertical progression and for the award of the degree. Those who do not take up/complete the internship shall be declared fail and shall have complete Summer Internship-1 during the subsequent examination/s after satisfying the internship requirement.

(iii) **Open Electives in Engineering Stream (Any One):** (a) 4BSO451 - Mathematical Modelling (b) 4BSO452 – Introduction to C programming language

(iv) **Stream Specific Elective (Any One):** (a) 4BSS431 -Concepts of Condensed Matter Physics (b) 4BSS433 -Numerical Analysis and Analytical Geometry

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V SEMESTER															
Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching & Learning Scheme				Examination				Credits		
					CI		LI		# TW & SL	# TH/S	Duration in hours	CIE Marks		SEE Marks	Total Marks
					L	T	P								
1	DC	4BSC51	Reaction Kinetics & Catalysis	Chemistry	42	28	0	20	90	3	50	50	100	3	
2	DC	4BSC52	Coordination and Bioinorganic Chemistry	Chemistry	42	28	0	20	90	3	50	50	100	3	
3	SSE	4BSS53X	Stream Specific Elective	Physics / Mathematics	42	28	0	20	90	3	50	50	100	3	
4	DC	4BSCL54	Inorganic chemistry Lab	Chemistry	0	0	42	18	60	3	50	50	100	2	
5	OEC	4BSO55X	Open elective course	Maths /IT Department	28	14	0	18	60	3	50	50	100	2	
6	OEC	4BSO561	Economics	HSMC	28	14	0	18	60	02	50	50	100	2	
		4BSO562	Indian History												
7	SEC	4BSC57	Summer internship -1 (Inter / Intra)	Chemistry	Completed during the intervening vacation of IV and V semesters				90	03	100		100	3	
8	DC	4BSC58	Research Project -1, Phase -1	Multidisciplinary		2*			60	02	50	--	50	2	
Total									600		450	300	750	20	

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OEC: Open Elective Course * Refers to contact hours between student and guide.

(ii) **Research Project 1, Phase – 1:** All the students admitted shall have to undergo a phase1of mandatory Research project 1 during the Vth Semester. In Phase-1 the students are required to submit the title, synopsis, Literature Survey and work plan. Based on the ability/abilities of student/students and the recommendations of the mentor, a single discipline or a multidisciplinary research project 1 can be assigned to an individual student or to a group having not more than 4 students. The project is a laboratory-oriented course that will provide a platform to students to enhance their practical knowledge and skills by the development of small systems/ applications.

(iii) **Open Electives in Engineering Stream (Any One):** (a) 4BSO551 - Concepts of Cyber Security (b) 4BSO552 – Introduction to Python programming

(iv) **Stream Specific Elective (Any One):** (a) 4BSS531 - Introduction to Quantum Computing (b) 4BSS533 - Infinite Series, Fourier Analysis and Transforms.

B.Sc.(Hon). Program Scheme of Teaching and Examinations 2026 Outcome-Based Education (OBE) and Choice-Based Credit System (CBCS) (Effective from the academic year 2026-27)														
VI SEMESTER														
Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching & Learning Scheme				Examination				Credits	
					CI		LI	# TW & SL	# TH/S	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P							
1	DC	4BSC61	Heterocyclic Chemistry	Chemistry	42	28	0	20	90	3	50	50	100	3
2	DC	4BSC62	Chemistry of materials	Chemistry	42	28	0	20	90	3	50	50	100	3
3	DC	4BSCL63	Organic Chemistry Lab	Chemistry	28	14	0	18	60	3	50	50	100	2
4	PBL	4BSC641	Chemistry of Drugs and Pharmaceuticals	Chemistry	28	14	0	18	60	3	50	50	100	2
		4BSC642	Food Quality and Adulteration Studies											
5	SSE	4BSS65X	Stream Specific Elective	Physics/ Maths	42	28	0	20	90	3	50	50	100	3
6	OEC	4BSO661	Sociology	HSMC	28	14	0	18	60	2	50	50	100	2
		4BSO662	Finance & Banking											
7	DC	4BSC67	Research Project-1 Phase 2	Physics/ Multidisciplinary		2*			90	3	50	50	100	5
Total									540		350	350	700	20

TH/S- Total Hours per Semester, TW & SL- Term Work & Self Learning

Note: (i) DC: Discipline Course, SEC: Skill Enhancement Course, AEC: Ability Enhancement Course, HSMC: Humanity, Social Science and Management. SSE: Stream Specific Elective OEC: Open Elective Course PBL: Project Based Learning * Refers to contact hours between student and guide.

(ii) **Research Project 1, Phase -2:** Semester-end examination of research project 1 will have the submission of the project report and viva voce presentation. The research project shall be considered as the head of passing for the award of degree. Those who do not take up/complete the mini-project shall be declared fail and shall have to complete Research project 1 during the subsequent examination/s after satisfying the project requirement.

(iii) **Summer Internship – 2** Internship of 04 weeks during the intervening period of VI and VII semesters; 4BSC76 Innovation/ Entrepreneurship/ Societal based Internship. (1) All the students shall undergo a mandatory internship of 04 weeks during the intervening period of VI and VII semesters. The internship shall be slated for CIE only and will not have SEE. The grade earned through CIE shall be included in the VII semester grade card. The internship shall be considered as a head of passing, vertical progression and award of degree. Those, who do not take up / complete the internship shall be considered under F (fail) grade and shall have to complete during subsequently after satisfying the internship requirements. (2) Innovation/Entrepreneurship/Societal Internship shall be carried out at industry, State and Central Government /Non-government organizations (NGOs), micro, small and medium enterprises (MSME), Innovation centres or Incubation centres. Societal/Rural internship is a work-based activity in which students will have a chance to identify the problems facing by the rural community and solve/reduce the identified problems through innovative ideas/projects/mechanisms.

(iv) **Project Based Learning (PBL):** (1) All the students shall undergo a mandatory PBL during the semester. The PBL shall be slated for CIE only and will not have SEE. A Viva-voce, Report submission and Presentation shall be conducted during the semester and prescribed credit shall be included. Those who do not take up/complete the PBL shall be declared fail and shall have to complete during the subsequent examination/s after satisfying the university requirement.

(v) **Stream Specific Elective (Any One):** (a) 4BSS531 - Semiconductors & Electronics (b) 4BSS533 - Linear Programming, Probability, and Statistics.

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VII SEMESTER														
Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination				Credits	
					CI		LI	# TW & SL	# TH/S	Duration in hours	CIE Marks	SEE Marks		Total Marks
					L	T	P							
1	DC	4BSC71	Analytical Chemistry	Chemistry	42	28	0	20	90	3	50	50	100	3
2	DC	4BSC72	Electrochemical Processes and Systems	Chemistry	42	28	0	20	90	3	50	50	100	3
3	DC	4BSCL73	Analytical Chemistry Lab	Chemistry	28	14	0	18	60	3	50	50	100	2
4	DSE	4BSC741	Spectroscopic Methods in Molecular Analysis	Chemistry	42	28	0	20	90	3	50	50	100	3
		4BSC742	Quantum Chemistry											
5	PBL	4BSC751	Chemistry of Nanomaterials	Chemistry	48	28	0	20	90	3	50	50	100	3
		4BSC752	Chemistry of Cosmetics and Perfumes											
6	SEC	4BSC76	Summer Internship-2	Chemistry	Completed during the intervening vacation of VI and VII semester				120	3	100	--	100	4
7	DC	4BSC77	Research Project -2 Phase -1	Chemistry / Multidisciplinary		2*			60	3	50	--	50	2
Total									600		400	250	650	20

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Note:

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(ii) **Research project 2, Phase-1:** All the students are required to submit the title, synopsis and work plan. The objective of the project work is – To encourage the independent learning and innovative attitude of the students. To develop interactive communication, organization time management and presentation skills. To inspire independent and team working. To train the students to present the topic of project work in a seminar without any fear, and face the audience confidently.

(iii) **Project Based Learning (PBL):** (1) All the students shall undergo a mandatory PBL during the semester. The PBL shall be slated for CIE only and will not have SEE. A Viva-voce, Report submission and Presentation shall be conducted during the semester and prescribed credit shall be included. Those who do not take up/complete the PBL shall be declared fail and shall have to complete during the subsequent examination/s after satisfying the university requirement.

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Outcome-Based Education (OBE) and Choice-Based Credit System (CBCS) (Effective from the academic year 2026-27)															
VIII SEMESTER															
Sl. No	Course and Course Code		Course Title	Teaching Department (TD) and Question Paper Setting Board (PSB)	Teaching Hours /Week				Examination						
					CI		LI		# TW & SL	# TH/S	Duration in hours	CIE Marks	SEE Marks	Total Marks	Credits
					L	T	P								
1	DC	4BSC81	Green Chemistry	Chemistry	42	28	0	20	90	3	50	50	100	3	
2	DC	4BSC82	Nuclear & Radiation Chemistry	Chemistry	42	28	0	20	90	3	50	50	100	3	
3	DC	4BSC83	Electrochemistry Lab	Chemistry	28	14	0	18	60	3	50	50	100	2	
4	PBL	4BSC84	Polymer Chemistry & Composite Materials	Chemistry	42	28	0	20	90	3	50	50	100	3	
5		4BSC85	Advanced Material Chemistry	Chemistry											
6	DC	4BSC86	Research Project 2, Phase-2	Chemistry		2*			240	3	50	50	100	8	
7	AEC	4BSC87	NSS/ PE/ Yoga/ Fine arts	NSS/ PE	Completed during the Intervening period of I to VIII Semester				30	--	50	50	100	1	
Total									600		300	300	600	20	

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(ii) **Project Based Learning (PBL):** (1) All the students shall undergo a mandatory PBL during the semester. The PBL shall be slated for CIE only and will not have SEE. A Viva-voce, Report submission and Presentation shall be conducted during the semester and prescribed credit shall be included. Those who do not take up/complete the PBL shall be declared fail and shall have to complete during the subsequent examination/s after satisfying the university requirement.

(iii) **Research Project 2, Phase 2** – The semester end examination of research project phase 2 will have the submission of research project report and viva voce presentation. The research project shall be considered as head of passing for the award of the degree. Those who do not take up/complete the research project shall be declared fail and shall have to complete the research project 2 during the subsequent examination/s after satisfying the project requirements.

(iv) **Non-credit mandatory courses (NMC):** National Service Scheme/Physical Education (Sport and Athletics)/ Yoga/Fine Arts: (1) Securing 40 % or more in CIE, 35 % or more marks in SEE, and 40 % or more in the sum total of CIE + SEE leads to successful completion of the registered course. (2) In case, students fail to secure 35 % marks in SEE, they have to appear for SEE during the subsequent examinations conducted by the University. (3) In case, any student fails to register for NSS, PE or Yoga/fails to secure the minimum 40 % of the prescribed CIE marks, he/she shall be deemed to have not completed the requirements of the course. In such a case, the student has to fulfill the course requirements during subsequently to earn the qualifying CIE marks subject to the maximum program period. (4) Successful completion of the course shall be indicated as satisfactory in the grade card. Non-completion of the course shall be indicated as Unsatisfactory. (5) These courses shall not be considered for vertical progression as well as for the calculation of SGPA and CGPA, but completion of the courses shall be mandatory for the award of a degree.