

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

Jnana Sangam, Machhe, Belagavi-590018



Scheme of Teaching and Examinations 2026

Outcome-Based Education (OBE) and Choice-Based Credit System (CBCS)

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 (Physics 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	4BSP41	Solid State Physics	Physics	42	28	0	20	90	3	50	50	100	3
2	DC	4BSP42	Electricity & Magnetism	Physics	42	28	0	20	90	3	50	50	100	3
3	SSE	4BSS43X	Stream Specific Elective	Chemistry / Mathematics	42	28	0	20	90	3	50	50	100	3
4	DC	4BSPL44	Electricity & Magnetism Lab	Physics	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	4BSP46	Astrophysics	Physics	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	4BSP48X	Online course (Physics related)	MOOCS/ VTU/NPTEL/COURSERA	0	0	0	60	60	0	50	50	100	2
9	AEC	4BSP49	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) 4BSS432 – Soil and water Chemistry (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	# TH/S	Duration in hours	CIE Marks	SEE Marks	Total Marks		
					L	T	P							
1	DC	4BSP51	Semiconductor Physics	Physics	42	28	0	20	90	3	50	50	100	3
2	DC	4BSP52	Atomic & Molecular Spectroscopy	Physics	42	28	0	20	90	3	50	50	100	3
3	SSE	4BSS53X	Stream Specific Elective	Chemistry / Mathematics	42	28	0	20	90	3	50	50	100	3
4	DC	4BSPL54	Atomic & Molecular and Semiconductor Physics Lab	Physics	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	4BSP57	Summer internship -1 (Inter / Intra)	Physics	Completed during the intervening vacation of IV and V semesters				90	03	100	--	100	3
8	DC	4BSP58	Research Project -1, Phase -1	Physics/ 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 phase I of 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) 4BSS532 – Geochemistry (b) 4BSS533 - Infinite Series, Fourier Analysis and Transforms

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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	4BSP61	Analog and Digital Electronics	Physics	42	28	0	20	90	3	50	50	100	3
2	DC	4BSP62	Nuclear Physics	Physics	42	28	0	20	90	3	50	50	100	3
3	DC	4BSPL63	Electronics and Nuclear Physics Lab	Physics	28	14	0	18	60	3	50	50	100	2
4	PBL	4BSP641	Physics of Nano materials	Physics	28	14	0	18	60	3	50	50	100	2
		4BSP642	Photonics											
5	SSE	4BSS65X	Stream Specific Elective	Chemistry/ 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	4BSP67	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 project1 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) 4BSS652: Industrial Chemistry (b) 4BSS533 -Linear Programming, Probability, and Statistic

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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	4BSP71	Mathematical Physics	Physics	42	28	0	20	90	3	50	50	100	3
2	DC	4BSP72	Classical & Statistical Physics	Physics	42	28	0	20	90	3	50	50	100	3
3	DC	4BSPL73	Applied Electronics Lab	Physics	28	14	0	18	60	3	50	50	100	2
4	DSE	4BSP741	Advanced Condensed Matter Physics	Physics	42	28	0	20	90	3	50	50	100	3
		4BSP742	Instrumentation Techniques and Material Characterization											
5	PBL	4BSP751	Renewable Energy Systems	Physics	42	28	0	20	90	3	50	50	100	3
		4BSP752	Radiation and Medical Physics											
6	SEC	4BSP76	Summer Internship-2	Physics	Completed during the intervening vacation of VI and VII semester				120	3	100	--	100	4
7	DC	4BSP77	Research Project -2 Phase -1	Physics/ Multidisciplinary		2*			60	3	50	--	50	2
Total									600		400	250	650	20

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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

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)														
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	4BSP81	Advanced Quantum Mechanics	Physics	42	28	0	20	90	3	50	50	100	3
2	DC	4BSP82	Electrodynamics	Physics	42	28	0	20	90	3	50	50	100	3
3	DC	4BSP83	General Physics Laboratory	Physics	28	14	0	18	60	3	50	50	100	2
4	DSE	4BSP84	Thermoelectric Materials and Devices	Physics	42	28	0	20	90	3	50	50	100	3
5		4BSP85	Quantum Computing and Logic	Physics										
6	DC	4BSP86	Research Project 2, Phase-2	Physics					240	3	50	50	100	8
7	AEC	4BSC87	NSS/ PE/ Yoga/ Fine arts	NSS/ PE	Completed during the Intervening period of IV to VIII Semester				30	--	50	50	100	1
Total									600		300	300	600	20

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

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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 (NCMC): 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.