

Amrita Vishwa Vidyapeetham

Curriculum - B.Sc. (Physics, Mathematics, Computer Science)

Course Code	Semester I	L T P	Credit	Course Code	Semester II	L T P	Credit
21ENG101	Communicative English	2 0 2	3	21ENG111	Professional Communication	1 0 2	2
	Language I	1 0 2	2		Language II	1 0 2	2
21CUL101	Cultural Education	2 0 0	2	21CUL111	Cultural Education	2 0 0	2
21PHY106	Physics Paper I Mechanics	3 0 2	4	21PHY116	Physics Paper II Heat and Thermodynamics	3 0 2	4
21MAT106	Mathematics Paper I Calculus	3 1 0	4	21MAT116	Mathematics Paper II Linear Algebra	3 1 0	4
21CSA102	Computer Science Paper I Problem Solving and Algorithmic Thinking	3 0 2	4	21CSA111	Computer Science Paper II Data Structures	3 0 2	4
21ENV200	Environmental Science and Sustainability	3 0 0	3	21LAW200	Indian Constitution	2 0 0	2
	Subtotal		22		Subtotal		20
	Semester III	L T P	Credit	Course Code	Semester IV	L T P	Credit
21AVP201	Amrita Value Programme I	1 0 0	1	21AVP211	Amrita Value Programme II	1 0 0	1
21PHY206	Physics Paper III Electricity and Magnetism	3 0 2	4	21PHY216	Physics Paper IV Optics	3 0 2	4
21MAT206	Mathematics Paper III Differential Equations	3 1 0	4	21MAT216	Mathematics Paper IV Modern Algebra	3 1 0	4
21CSA206	Computer Science Paper III Data Communication and Computer Networks	3 0 2	4	21CSA216	Computer Science Paper IV Analysis and Design of Algorithms	3 0 0	3
21SSK201	Life Skills I	1 0 2	2	21CSA217	Computer Science Paper V Database Management Systems	3 0 2	4
	Elective A	3 0 0	3		Open Elective	3 0 0	3
	Elective B	3 0 0	3	21SSK211	Life Skills II	1 0 2	2
21CSA207	Web Technology	1 0 2	2		Elective C	3 0 0	3
	Subtotal		23		Subtotal		24
	Semester V	L T P	Credit	Course Code	Semester VI	L T P	Credit
21PHY306	Physics Paper V Basic Electronics	3 1 0	4	21PHY316	Physics Paper VII Atomic and Molecular Physics	3 1 0	4
21PHY386	Physics Paper VI - Practical paper Practicals	0 0 2	1	21PHY387	Physics Paper VIII - Practical paper Practicals	0 0 2	1
21MAT307	Mathematics Paper V Real Analysis	3 1 0	4	21MAT316	Mathematics Paper VII Complex Analysis	2 1 0	3
21MAT308	Mathematics Paper VI Discrete Mathematics	2 1 0	3	21MAT317	Mathematics Paper VIII Probability and Statistics	3 1 0	4
21CSA305	Computer Science Paper VI Operating System	3 0 0	3	21CSA315	Computer Science Paper VII Introduction to Machine Learning	3 0 2	4
	Computer Science Lab 01	0 0 2	1		Computer Science Lab 02	0 0 2	1
21SSK301	Life Skills III	1 0 2	2	21SCI398	Project		6
	Elective	3 0 0	3				
21LIV311	Open Elective / Live-in lab	3 0 0	3				
	Subtotal		24		Subtotal		23
Total Credits till VI Semester - 136							

Electives : Physics	
21PHY331	Medical Physics
21PHY332	Renewable Energy and Energy Harvesting
21PHY333	Introduction to Nanophysics and Applications
21PHY334	Physics of the Atmosphere
21PHY335	Biophysics
21PHY336	Space Physics
21PHY337	Nuclear and Particle Physics
21PHY338	Earth Science
21PHY339	Semiconductor Physics
21PHY340	Modern Physics
Electives: Mathematics	
21MAT431	Operations Research
21MAT432	Numerical Methods
21MAT433	Integral Transforms and Fourier Series
21MAT434	Applied Statistics
21MAT435	Number Theory
21MAT436	Special Functions

Electives: Computer Science	
21CSA431	Software Engineering
21CSA432	Theory of Computation
21CSA433	Design and Analysis of Algorithm
21CSA434	Compiler Design
21CSA435	Distributed Computing
21CSA436	Data Mining
21CSA437	Artificial Intelligence
21CSA438	Data Analytics
21CSA439	Image Processing
21CSA440	IoT
21CSA441	Foundations of Data Science
	CS Lab
21CSA382	R Programming
21CSA383	Python Programming
21CSA384	Matlab Programming
21CSA385	Data Visualization
21CSA386	Windows Programming using Dot Net
21CSA387	Software Testing
21CSA388	Object Oriented Programming

OPEN ELECTIVES

Course Code	Course Title	L - T - P	Cr.	ES
21OEL231	A Journey towards Free India	3 0 0	3	J

21OEL232	Political Leadership	3 0 0	3	J
21OEL233	Social issues in Contemporary India	3 0 0	3	J
21OEL234	The Story of Indian Business	3 0 0	3	J
21OEL235	Industrial Psychology	3 0 0	3	J
21OEL236	Advertising	3 0 0	3	J
21OEL237	Basic Statistics	3 0 0	3	J
21OEL238	Citizen Journalism	3 0 0	3	J
21OEL239	Creative Writing for Beginners	3 0 0	3	J
21OEL240	Desktop Support and Services	3 0 0	3	J
21OEL241	Development Journalism	3 0 0	3	J
21OEL242	Digital Photography	3 0 0	3	J
21OEL243	Emotional Intelligence	3 0 0	3	J
21OEL244	Essence of Spiritual Literature	3 0 0	3	J
21OEL245	Film Theory	3 0 0	3	J
21OEL246	Fundamentals of Network Administration	3 0 0	3	J
21OEL247	Gender Studies	3 0 0	3	J
21OEL248	Glimpses of Indian Economy and Polity	3 0 0	3	J
21OEL249	Graphics and Web-designing Tools	3 0 0	3	J
21OEL250	Green Marketing	3 0 0	3	J
21OEL251	Healthcare and Technology	3 0 0	3	J
21OEL252	History of English Literature	3 0 0	3	J
21OEL253	Indian Writing in English	3 0 0	3	J
21OEL254	Industrial Relations and Labour Welfare	3 0 0	3	J
21OEL255	Introduction to Ancient Indian Yogic and Vedic Wisdom	3 0 0	3	J
21OEL256	Introduction to Computer Hardware	3 0 0	3	J
21OEL257	Introduction to Event Management	3 0 0	3	J
21OEL258	Introduction to Media	3 0 0	3	J
21OEL259	Introduction to Right to Information Act	3 0 0	3	J
21OEL260	Introduction to Translation	3 0 0	3	J
21OEL261	Linguistic Abilities	3 0 0	3	J
21OEL262	Literary Criticism and Theory	3 0 0	3	J
21OEL263	Macro Economics	3 0 0	3	J
21OEL264	Managing Failure	3 0 0	3	J
21OEL265	Media Management	3 0 0	3	J
21OEL266	Micro Economics	3 0 0	3	J
21OEL267	Micro Finance, Small Group Management and Cooperatives	3 0 0	3	J
21OEL268	Negotiation and Counselling	3 0 0	3	J
21OEL269	New Literatures	3 0 0	3	J
21OEL270	Non-Profit Organization	3 0 0	3	J
21OEL271	Personal Effectiveness	3 0 0	3	J
21OEL272	Perspectives in Astrophysics and Cosmology	3 0 0	3	J
21OEL273	Principles of Marketing	3 0 0	3	J
21OEL274	Principles of Public Relations	3 0 0	3	J
21OEL275	Science, Society and Culture	3 0 0	3	J
21OEL276	Statistical Analysis	3 0 0	3	J
21OEL277	Teamwork and Collaboration	3 0 0	3	J
21OEL278	The Message of Bhagwad Gita	3 0 0	3	J
21OEL279	Understanding Travel and Tourism	3 0 0	3	J
21OEL280	Videography	3 0 0	3	J
21OEL281	Vistas of English Literature	3 0 0	3	J
21OEL282	Web-Designing Techniques	3 0 0	3	J
21OEL283	Organic Farming	3 0 0	3	J
21OEL284	Basic Legal Awareness on Protection of Women and Rights	3 0 0	3	J
21OEL285	Ritual Performances of Kerala	3 0 0	3	J
21OEL286	Documenting Social Issues	3 0 0	3	J
21OEL287	Fabrication of Advanced Solar Cell	3 0 0	3	J
21OEL288	Basic Concepts of X-ray Diffraction	3 0 0	3	J
21OEL289	Introduction to FORTRAN and GNUPLLOT	3 0 0	3	J
21OEL290	Introduction to Porous Materials	3 0 0	3	J
21OEL291	Forensic Science	3 0 0	3	J
21OEL292	Introduction to solar Physics	3 0 0	3	J
21OEL293	Recycling Recovery and Treatment Methods for Wastes	3 0 0	3	J
21OEL294	Acting and Dramatic Presentation	2 0 2	3	J
21OEL295	Computerized Accounting	2 0 2	3	J
21OEL296	Kerala Mural Art and Painting	2 0 2	3	J
21OEL297	Painting	2 0 2	3	J
21OEL298	Reporting Rural Issues	3 0 0	3	J