



JAGADGURUKUL
UNIVERSITY

Faculty of Science

B.Sc. Physical Science*

(Physics, Chemistry, Mathematics)

(w.e.f. 2015-2016)

Program Structure

BACHELOR OF SCIENCE

FIRST SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC101	English	3	-	-	30	70	100	3
BSC102	Mechanics	5	-	-	30	70	100	5
BSC103	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic hydrocarbons	5	-	-	30	70	100	5
BSC104	Differential Calculus	6	-	-	30	70	100	6
<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC105	Mechanics Lab	-	-	4	30	20	50	2
BSC106	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic hydrocarbons Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE

SECOND SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC201	Environmental Science	3	1	1	30	70	100	3
BSC202	Electricity, Magnetism and EMT	5	1	1	30	70	100	5
BSC203	Chemical energetic, Equilibria & Functional Group Organic Chemistry-I	5	1	1	30	70	100	5
BSC204	Differential Equations	6	1	1	30	70	100	6
<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC205	Electricity, Magnetism and EMT Lab	1	1	4	30	20	50	2
BSC206	Chemical energetic, Equilibria & Functional Group Organic Chemistry-I Lab	1	1	4	30	20	50	2
TOTAL		19		8	180	320	500	23

BACHELOR OF SCIENCE
THIRD SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC301	Thermal Physics and Statistical Mechanics	5	-	-	30	70	100	5
BSC302	Solutions, Phase equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II	5	-	-	30	70	100	5
BSC303	Real Analysis	6	-	-	30	70	100	6
BSC304	SEC-1 (Choose any one)							
BSC304A	Analytical Geometry							
BSC304B	Integral Calculus							
BSC304C	Physics workshop skills	3	-	-	30	70	100	3
BSC304D	Computational physics skills							
BSC304E	Pharmaceutical Chemistry							
BSC304F	Basic Analytical Chemistry							
PRACTICALS/VIVA-VOCE		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC305	Thermal Physics and Statistical Mechanics Lab	-	-	4	30	20	50	2
BSC306	Solutions, Phase equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE

FOURTH SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC401	Waves and optics	5	-	-	30	70	100	5
BSC402	Transition Metal & Coordination Chemistry, states and matter Chemical kinetics	5	-	-	30	70	100	5
BSC403	Algebra	6	-	-	30	70	100	6
BSC404	SEC-2 (Choose any one)							
BSC404A	Vector Calculus							
BSC404B	Theory of Equations							
BSC404C	Electrical circuit & net work skills	3	-	-	30	70	100	3
BSC404D	Technical drawing							
BSC404E	Analytical Clinical Biochemistry							
BSC404F	Green Methods in Chemistry							
PRACTICALS/VIVA-VOCE		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC405	Waves and optics Lab	-	-	4	30	20	50	2
BSC406	Transition Metal & Coordination Chemistry Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE
FIFTH SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC501	SEC-3 (Choose any one)							
BSC501A	Probability and Statistics							
BSC501B	Mathematical Modelling							
BSC501C	Radiology & safety	3	1	1	30	70	100	3
BSC501D	Weather forecasting							
BSC501E	Chemistry of Cosmetics & Perfumes							
BSC501F	Pesticide Chemistry							
BSC502	DSE-1A (Choose any one)							
BSC502A	Matrices							
BSC502B	Mechanics	6	1	1	30	70	100	6
BSC502C	Linear Algebra							
BSC503	DSE-2A (Choose any one)							
BSC503A	Analytical Methods in Chemistry							
BSC503B	Novel Inorganic Solids							
BSC503C	Organometallics, Bioinorganic chemistry, Polynuclear hydrocarbons and UV, IR Spectroscopy	5	1	1	30	70	100	5
BSC503D	Chemistry of Main Group Elements, Theories of Acids and Bases							
BSC504	DSE-3A (Choose any one)							
BSC504A	Digital, Analog and Instrumentation							
BSC504B	Elements of Modern Physics	5	1	1	30	70	100	5
BSC504C	Mathematical Physics							
BSC504D	Solid State Physics							

<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC505	DSE-2A (Choose any one)							
BSC505A	Analytical Methods in Chemistry Lab							
BSC505B	Novel Inorganic Solids Lab							
BSC505C	Organometallics, Bioinorganic chemistry, Polynuclear hydrocarbons and UV, IR Spectroscopy Lab	-	-	4	30	20	50	2
BSC505D	Chemistry of Main Group Elements, Theories of Acids and Bases Lab							
BSC506	DSE-3A (Choose any one)							
BSC506A	Digital, Analog and Instrumentation Lab							
BSC506B	Elements of Modern Physics Lab	-	-	4	30	20	50	2
BSC506C	Mathematical Physics Lab							
BSC506D	Solid State Physics Lab							
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE

SIXTH SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC601	SEC-4 (Choose any one)							
BSC601A	Transportation and Game Theory							
BSC601B	Graph Theory							
BSC601C	Applied optics	3	-	-	30	70	100	3
BSC601D	Basic instrumentation skills							
BSC601E	Chemical Technology & Society							
BSC601F	Fuel Chemistry							
BSC602	DSE-1B (Choose any one)							
BSC602A	Numerical Methods	6	-	-	30	70	100	6
BSC602B	Complex Analysis							
BSC602C	Linear Programming)							
BSC603	DSE-2B (Choose any one)							
BSC603A	Polymer Chemistry							
BSC603B	Green Chemistry	5	-	-	30	70	100	5
BSC603C	Instrumental Methods of Analysis							
BSC603D	Quantum Chemistry, Spectroscopy & Photochemistry							
BSC604	DSE-3B (Choose any one)							
BSC604A	Quantum Mechanics							
BSC604B	Embedded System: Introduction to microcontroller	5	2*	-	30	70	100	5(+2*)
BSC604C	Nuclear and Particle Physics (Theory + Tutorials 2*)							
BSC604D	Medical Physics							

<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC605	DSE-2B (Choose any one)							
BSC605A	Polymer Chemistry Lab							
BSC605B	Green Chemistry Lab	-	-	4	30	20	50	2
BSC605C	Instrumental Methods of Analysis Lab							
BSC605D	Quantum Chemistry, Spectroscopy & Photochemistry Lab							
BSC606	DSE-3B (Choose any one)							
BSC606A	Quantum Mechanics Lab							
BSC606B	Embedded System: Introduction to microcontroller Lab	-	-	4	30	20	50	2
BSC606D	Medical Physics Lab							
TOTAL		19	-	8	180	320	500	23

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BSC102	Mechanics	5	-	-	30	70	100	5
BSC103	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic hydrocarbons	5	-	-	30	70	100	5
BSC104	Differential Calculus	6	-	-	30	70	100	6
<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC105	Mechanics Lab	-	-	4	30	20	50	2
BSC106	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic hydrocarbons Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE

SECOND SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC201	Environmental Science	3	1	1	30	70	100	3
BSC202	Electricity, Magnetism and EMT	5	1	1	30	70	100	5
BSC203	Chemical energetic, Equilibria & Functional Group Organic Chemistry-I	5	1	1	30	70	100	5
BSC204	Differential Equations	6	1	1	30	70	100	6
<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC205	Electricity, Magnetism and EMT Lab	1	1	4	30	20	50	2
BSC206	Chemical energetic, Equilibria & Functional Group Organic Chemistry-I Lab	1	1	4	30	20	50	2
TOTAL		19		8	180	320	500	23

BACHELOR OF SCIENCE
THIRD SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC301	Thermal Physics and Statistical Mechanics	5	-	-	30	70	100	5
BSC302	Solutions, Phase equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II	5	-	-	30	70	100	5
BSC303	Real Analysis	6	-	-	30	70	100	6
BSC304	SEC-1 (Choose any one)							
BSC304A	Analytical Geometry							
BSC304B	Integral Calculus							
BSC304C	Physics workshop skills	3	-	-	30	70	100	3
BSC304D	Computational physics skills							
BSC304E	Pharmaceutical Chemistry							
BSC304F	Basic Analytical Chemistry							
<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC305	Thermal Physics and Statistical Mechanics Lab	-	-	4	30	20	50	2
BSC306	Solutions, Phase equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

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FOURTH SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC401	Waves and optics	5	-	-	30	70	100	5
BSC402	Transition Metal & Coordination Chemistry, states and matter Chemical kinetics	5	-	-	30	70	100	5
BSC403	Algebra	6	-	-	30	70	100	6
BSC404	SEC-2 (Choose any one)							
BSC404A	Vector Calculus							
BSC404B	Theory of Equations							
BSC404C	Electrical circuit & net work skills	3	-	-	30	70	100	3
BSC404D	Technical drawing							
BSC404E	Analytical Clinical Biochemistry							
BSC404F	Green Methods in Chemistry							
PRACTICALS/VIVA-VOCE		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC405	Waves and optics Lab	-	-	4	30	20	50	2
BSC406	Transition Metal & Coordination Chemistry Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

**BACHELOR OF SCIENCE
FIFTH SEMESTER**

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC501	SEC-3 (Choose any one)							
BSC501A	Probability and Statistics							
BSC501B	Mathematical Modelling							
BSC501C	Radiology & safety	3	1	1	30	70	100	3
BSC501D	Weather forecasting							
BSC501E	Chemistry of Cosmetics & Perfumes							
BSC501F	Pesticide Chemistry							
BSC502	DSE-1A (Choose any one)							
BSC502A	Matrices							
BSC502B	Mechanics	6	1	1	30	70	100	6
BSC502C	Linear Algebra							
BSC503	DSE-2A (Choose any one)							
BSC503A	Analytical Methods in Chemistry							
BSC503B	Novel Inorganic Solids							
BSC503C	Organometallics, Bioinorganic chemistry, Polynuclear hydrocarbons and UV, IR Spectroscopy	5	1	1	30	70	100	5
BSC503D	Chemistry of Main Group Elements, Theories of Acids and Bases							
BSC504	DSE-3A (Choose any one)							
BSC504A	Digital, Analog and Instrumentation							
BSC504B	Elements of Modern Physics	5	1	1	30	70	100	5
BSC504C	Mathematical Physics							
BSC504D	Solid State Physics							

<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC505	DSE-2A (Choose any one)							
BSC505A	Analytical Methods in Chemistry Lab							
BSC505B	Novel Inorganic Solids Lab							
BSC505C	Organometallics, Bioinorganic chemistry, Polynuclear hydrocarbons and UV, IR Spectroscopy Lab	-	-	4	30	20	50	2
BSC505D	Chemistry of Main Group Elements, Theories of Acids and Bases Lab							
BSC506	DSE-3A (Choose any one)							
BSC506A	Digital, Analog and Instrumentation Lab							
BSC506B	Elements of Modern Physics Lab	-	-	4	30	20	50	2
BSC506C	Mathematical Physics Lab							
BSC506D	Solid State Physics Lab							
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BACHELOR OF SCIENCE

SIXTH SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC601	SEC-4 (Choose any one)							
BSC601A	Transportation and Game Theory							
BSC601B	Graph Theory							
BSC601C	Applied optics	3	1	1	30	70	100	3
BSC601D	Basic instrumentation skills							
BSC601E	Chemical Technology & Society							
BSC601F	Fuel Chemistry							
BSC602	DSE-1B (Choose any one)							
BSC602A	Numerical Methods	6	1	1	30	70	100	6
BSC602B	Complex Analysis							
BSC602C	Linear Programming)							
BSC603	DSE-2B (Choose any one)							
BSC603A	Polymer Chemistry							
BSC603B	Green Chemistry	5	1	1	30	70	100	5
BSC603C	Instrumental Methods of Analysis							
BSC603D	Quantum Chemistry, Spectroscopy & Photochemistry							
BSC604	DSE-3B (Choose any one)							
BSC604A	Quantum Mechanics							
BSC604B	Embedded System: Introduction to microcontroller	5	2*	1	30	70	100	5(+2*)
BSC604C	Nuclear and Particle Physics (Theory + Tutorials 2*)							
BSC604D	Medical Physics							

<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC605	DSE-2B (Choose any one)							
BSC605A	Polymer Chemistry Lab							
BSC605B	Green Chemistry Lab	-	-	4	30	20	50	2
BSC605C	Instrumental Methods of Analysis Lab							
BSC605D	Quantum Chemistry, Spectroscopy & Photochemistry Lab							
BSC606	DSE-3B (Choose any one)							
BSC606A	Quantum Mechanics Lab							
BSC606B	Embedded System: Introduction to microcontroller Lab	-	-	4	30	20	50	2
BSC606D	Medical Physics Lab							
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Program Structure

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BSC102	Mechanics	5	-	-	30	70	100	5
BSC103	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic hydrocarbons	5	-	-	30	70	100	5
BSC104	Differential Calculus	6	-	-	30	70	100	6
<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC105	Mechanics Lab	-	-	4	30	20	50	2
BSC106	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic hydrocarbons Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE

SECOND SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC201	Environmental Science	3	1	1	30	70	100	3
BSC202	Electricity, Magnetism and EMT	5	1	1	30	70	100	5
BSC203	Chemical energetic, Equilibria & Functional Group Organic Chemistry-I	5	1	1	30	70	100	5
BSC204	Differential Equations	6	1	1	30	70	100	6
<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC205	Electricity, Magnetism and EMT Lab	1	1	4	30	20	50	2
BSC206	Chemical energetic, Equilibria & Functional Group Organic Chemistry-I Lab	1	1	4	30	20	50	2
TOTAL		19		8	180	320	500	23

BACHELOR OF SCIENCE
THIRD SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC301	Thermal Physics and Statistical Mechanics	5	-	-	30	70	100	5
BSC302	Solutions, Phase equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II	5	-	-	30	70	100	5
BSC303	Real Analysis	6	-	-	30	70	100	6
BSC304	SEC-1 (Choose any one)							
BSC304A	Analytical Geometry							
BSC304B	Integral Calculus							
BSC304C	Physics workshop skills	3	-	-	30	70	100	3
BSC304D	Computational physics skills							
BSC304E	Pharmaceutical Chemistry							
BSC304F	Basic Analytical Chemistry							
PRACTICALS/VIVA-VOCE		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC305	Thermal Physics and Statistical Mechanics Lab	-	-	4	30	20	50	2
BSC306	Solutions, Phase equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

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FOURTH SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC401	Waves and optics	5	-	-	30	70	100	5
BSC402	Transition Metal & Coordination Chemistry, states and matter Chemical kinetics	5	-	-	30	70	100	5
BSC403	Algebra	6	-	-	30	70	100	6
BSC404	SEC-2 (Choose any one)							
BSC404A	Vector Calculus							
BSC404B	Theory of Equations							
BSC404C	Electrical circuit & net work skills	3	-	-	30	70	100	3
BSC404D	Technical drawing							
BSC404E	Analytical Clinical Biochemistry							
BSC404F	Green Methods in Chemistry							
PRACTICALS/VIVA-VOCE		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC405	Waves and optics Lab	-	-	4	30	20	50	2
BSC406	Transition Metal & Coordination Chemistry Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE
FIFTH SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC501	SEC-3 (Choose any one)							
BSC501A	Probability and Statistics							
BSC501B	Mathematical Modelling							
BSC501C	Radiology & safety	3	1	1	30	70	100	3
BSC501D	Weather forecasting							
BSC501E	Chemistry of Cosmetics & Perfumes							
BSC501F	Pesticide Chemistry							
BSC502	DSE-1A (Choose any one)							
BSC502A	Matrices	6	1	1	30	70	100	6
BSC502B	Mechanics							
BSC502C	Linear Algebra							
BSC503	DSE-2A (Choose any one)							
BSC503A	Analytical Methods in Chemistry							
BSC503B	Novel Inorganic Solids							
BSC503C	Organometallics, Bioinorganic chemistry, Polynuclear hydrocarbons and UV, IR Spectroscopy	5	1	1	30	70	100	5
BSC503D	Chemistry of Main Group Elements, Theories of Acids and Bases							
BSC504	DSE-3A (Choose any one)							
BSC504A	Digital, Analog and Instrumentation							
BSC504B	Elements of Modern Physics	5	1	1	30	70	100	5
BSC504C	Mathematical Physics							
BSC504D	Solid State Physics							

<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC505	DSE-2A (Choose any one)							
BSC505A	Analytical Methods in Chemistry Lab							
BSC505B	Novel Inorganic Solids Lab							
BSC505C	Organometallics, Bioinorganic chemistry, Polynuclear hydrocarbons and UV, IR Spectroscopy Lab	-	-	4	30	20	50	2
BSC505D	Chemistry of Main Group Elements, Theories of Acids and Bases Lab							
BSC506	DSE-3A (Choose any one)							
BSC506A	Digital, Analog and Instrumentation Lab							
BSC506B	Elements of Modern Physics Lab	-	-	4	30	20	50	2
BSC506C	Mathematical Physics Lab							
BSC506D	Solid State Physics Lab							
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BSC601	SEC-4 (Choose any one)							
BSC601A	Transportation and Game Theory							
BSC601B	Graph Theory							
BSC601C	Applied optics	3	1	1	30	70	100	3
BSC601D	Basic instrumentation skills							
BSC601E	Chemical Technology & Society							
BSC601F	Fuel Chemistry							
BSC602	DSE-1B (Choose any one)							
BSC602A	Numerical Methods	6	1	1	30	70	100	6
BSC602B	Complex Analysis							
BSC602C	Linear Programming)							
BSC603	DSE-2B (Choose any one)							
BSC603A	Polymer Chemistry							
BSC603B	Green Chemistry	5	1	1	30	70	100	5
BSC603C	Instrumental Methods of Analysis							
BSC603D	Quantum Chemistry, Spectroscopy & Photochemistry							
BSC604	DSE-3B (Choose any one)							
BSC604A	Quantum Mechanics							
BSC604B	Embedded System: Introduction to microcontroller	5	2*	1	30	70	100	5(+2*)
BSC604C	Nuclear and Particle Physics (Theory + Tutorials 2*)							
BSC604D	Medical Physics							

<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC605	DSE-2B (Choose any one)							
BSC605A	Polymer Chemistry Lab							
BSC605B	Green Chemistry Lab	-	-	4	30	20	50	2
BSC605C	Instrumental Methods of Analysis Lab							
BSC605D	Quantum Chemistry, Spectroscopy & Photochemistry Lab							
BSC606	DSE-3B (Choose any one)							
BSC606A	Quantum Mechanics Lab							
BSC606B	Embedded System: Introduction to microcontroller Lab	-	-	4	30	20	50	2
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THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC101	English	3	1	1	30	70	100	3
BSC102	Mechanics	5	1	1	30	70	100	5
BSC103	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic hydrocarbons	5	1	1	30	70	100	5
BSC104	Differential Calculus	6	1	1	30	70	100	6
PRACTICALS/VIVA-VOCE		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC105	Mechanics Lab	1	1	4	30	20	50	2
BSC106	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic hydrocarbons Lab	1	1	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE

SECOND SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC201	Environmental Science	3	1	1	30	70	100	3
BSC202	Electricity, Magnetism and EMT	5	1	1	30	70	100	5
BSC203	Chemical energetic, Equilibria & Functional Group Organic Chemistry-I	5	1	1	30	70	100	5

BSC204	Differential Equations	6	1	1	30	70	100	6
PRACTICALS/VIVA-VOCE		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC205	Electricity, Magnetism and EMT Lab	1	1	4	30	20	50	2
BSC206	Chemical energetic , Equilibria & Functional Group Organic Chemistry-I Lab	1	1	4	30	20	50	2
TOTAL		19		8	180	320	500	23

BACHELOR OF SCIENCE

THIRD SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC301	Thermal Physics and Statistical Mechanics	5	-	-	30	70	100	5
BSC302	Solutions, Phase equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II	5	-	-	30	70	100	5
BSC303	Real Analysis	6	-	-	30	70	100	6
BSC304	SEC-1 (Choose any one)							
BSC304A	Analytical Geometry							
BSC304B	Integral Calculus and Applied Mathematics							
BSC304C	Physics workshop skills	3	-	-	30	70	100	3
BSC304D	Computational physics skills							
BSC304E	Pharmaceutical Chemistry							
BSC304F	Basic Analytical Chemistry							
<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC305	Thermal Physics and Statistical Mechanics Lab	-	-	4	30	20	50	2
BSC306	Solutions, Phase equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE

FOURTH SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC401	Waves and optics	5	-	-	30	70	100	5
BSC402	Transition Metal & Coordination Chemistry, states and matter Chemical kinetics	5	-	-	30	70	100	5
BSC403	Algebra	6	-	-	30	70	100	6
BSC404	SEC-2 (Choose any one)							
BSC404A	Vector Calculus							
BSC404B	Theory of Equations							
BSC404C	Electrical circuit & net work skills	3	-	-	30	70	100	3
BSC404D	Technical drawing							
BSC404E	Analytical Clinical Biochemistry							
BSC404F	Green Methods in Chemistry							
PRACTICALS/VIVA-VOCE		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC405	Waves and optics Lab	-	-	4	30	20	50	2
BSC406	Transition Metal & Coordination Chemistry Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE

FIFTH SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC501	SEC-3 (Choose any one)							
BSC501A	Probability and Statistics							
BSC501B	Mathematical Modelling							
BSC501C	Radiology & safety	3	1	1	30	70	100	3
BSC501D	Weather forecasting							
BSC501E	Chemistry of Cosmetics & Perfumes							
BSC501F	Pesticide Chemistry							
BSC502	DSE-1A (Choose any one)							
BSC502A	Matrices							
BSC502B	Mechanics	6	1	1	30	70	100	6
BSC502C	Linear Algebra							
BSC503	DSE-2A (Choose any one)							
BSC503A	Analytical Methods in Chemistry							
BSC503B	Novel Inorganic Solids							
BSC503C	Organometallics, Bioinorganic chemistry, Polynuclear hydrocarbons and UV, IR Spectroscopy	5	1	1	30	70	100	5
BSC503D	Chemistry of Main Group Elements, Theories of Acids and Bases							
BSC504	DSE-3A (Choose any one)							
BSC504A	Digital, Analog and Instrumentation							
BSC504B	Elements of Modern Physics	5	1	1	30	70	100	5
BSC504C	Mathematical Physics							
BSC504D	Solid State Physics							

<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC505	DSE-2A (Choose any one)							
BSC505A	Analytical Methods in Chemistry Lab							
BSC505B	Novel Inorganic Solids Lab							
BSC505C	Organometallics, Bioinorganic chemistry, Polynuclear hydrocarbons and UV, IR Spectroscopy Lab	-	-	4	30	20	50	2
BSC505D	Chemistry of Main Group Elements, Theories of Acids and Bases Lab							
BSC506	DSE-3A (Choose any one)							
BSC506A	Digital, Analog and Instrumentation Lab							
BSC506B	Elements of Modern Physics Lab	-	-	4	30	20	50	2
BSC506C	Mathematical Physics Lab							
BSC506D	Solid State Physics Lab							
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE
SIXTH SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC601	SEC-4 (Choose any one)							
BSC601A	Transportation and Game Theory							
BSC601B	Graph Theory							
BSC601C	Applied optics	3	-	-	30	70	100	3
BSC601D	Basic instrumentation skills							
BSC601E	Chemical Technology & Society							
BSC601F	Fuel Chemistry							
BSC602	DSE-1B (Choose any one)							
BSC602A	Numerical Methods							
BSC602B	Complex Analysis	6	-	-	30	70	100	6
BSC602C	Linear Programming)							
BSC603	DSE-2B (Choose any one)							
BSC603A	Polymer Chemistry							
BSC603B	Green Chemistry							
BSC603C	Instrumental Methods of Analysis	5	-	-	30	70	100	5
BSC603D	Quantum Chemistry, Spectroscopy & Photochemistry							
BSC604	DSE-3B (Choose any one)							
BSC604A	Quantum Mechanics							
BSC604B	Embedded System: Introduction to microcontroller	5	2*	-	30	70	100	5(+2*)
BSC604C	Nuclear and Particle Physics (Theory + Tutorials 2*)							
BSC604D	Medical Physics							

<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC605	DSE-2B (Choose any one)							
BSC605A	Polymer Chemistry Lab							
BSC605B	Green Chemistry Lab	-	-	4	30	20	50	2
BSC605C	Instrumental Methods of Analysis Lab							
BSC605D	Quantum Chemistry, Spectroscopy & Photochemistry Lab							
BSC606	DSE-3B (Choose any one)							
BSC606A	Quantum Mechanics Lab							
BSC606B	Embedded System: Introduction to microcontroller Lab	-	-	4	30	20	50	2
BSC606D	Medical Physics Lab							
TOTAL		19	-	8	180	320	500	23

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JAGADGURURAMBHADRACHARYA
UNIVERSITY

Faculty of Science

B.Sc. Physical Science*

(Physics, Chemistry, Mathematics)

(w.e.f. 2019-2020)

Program Structure

BACHELOR OF SCIENCE

FIRST SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC101	English	3	-	-	30	70	100	3
BSC102	Mechanics	5	-	-	30	70	100	5
BSC103	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic hydrocarbons	5	-	-	30	70	100	5
BSC104	Differential Calculus	6	-	-	30	70	100	6
<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC105	Mechanics Lab	-	-	4	30	20	50	2
BSC106	Atomic Structure, Bonding, General Organic Chemistry & Aliphatic hydrocarbons Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE

SECOND SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC201	Environmental Science	3	1	1	30	70	100	3
BSC202	Electricity, Magnetism and EMT	5	1	1	30	70	100	5
BSC203	Chemical energetic, Equilibria & Functional Group Organic Chemistry-I	5	1	1	30	70	100	5
BSC204	Differential Equations	6	1	1	30	70	100	6
<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC205	Electricity, Magnetism and EMT Lab	1	1	4	30	20	50	2
BSC206	Chemical energetic, Equilibria & Functional Group Organic Chemistry-I Lab	1	1	4	30	20	50	2
TOTAL		19		8	180	320	500	23

BACHELOR OF SCIENCE

THIRD SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC301	Thermal Physics and Statistical Mechanics	5	-	-	30	70	100	5
BSC302	Solutions, Phase equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II	5	-	-	30	70	100	5
BSC303	Real Analysis	6	-	-	30	70	100	6
BSC304	SEC-1 (Choose any one)							
BSC304A	Analytical Geometry							
BSC304B	Integral Calculus and Applied Mathematics							
BSC304C	Physics workshop skills	3	-	-	30	70	100	3
BSC304D	Computational physics skills							
BSC304E	Pharmaceutical Chemistry							
BSC304F	Basic Analytical Chemistry							
<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC305	Thermal Physics and Statistical Mechanics Lab	-	-	4	30	20	50	2
BSC306	Solutions, Phase equilibria, Conductance, Electrochemistry & Functional Group Organic Chemistry-II Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE

FOURTH SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC401	Waves and optics	5	-	-	30	70	100	5
BSC402	Transition Metal & Coordination Chemistry, states and matter Chemical kinetics	5	-	-	30	70	100	5
BSC403	Algebra	6	-	-	30	70	100	6
BSC404	SEC-2 (Choose any one)							
BSC404A	Vector Calculus							
BSC404B	Theory of Equations							
BSC404C	Electrical circuit & net work skills	3	-	-	30	70	100	3
BSC404D	Technical drawing							
BSC404E	Analytical Clinical Biochemistry							
BSC404F	Green Methods in Chemistry							
PRACTICALS/VIVA-VOCE		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC405	Waves and optics Lab	-	-	4	30	20	50	2
BSC406	Transition Metal & Coordination Chemistry Lab	-	-	4	30	20	50	2
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE
FIFTH SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC501	SEC-3 (Choose any one)							
BSC501A	Probability and Statistics							
BSC501B	Mathematical Modelling							
BSC501C	Radiology & safety	3	1	1	30	70	100	3
BSC501D	Weather forecasting							
BSC501E	Chemistry of Cosmetics & Perfumes							
BSC501F	Pesticide Chemistry							
BSC502	DSE-1A (Choose any one)							
BSC502A	Matrices	6	1	1	30	70	100	6
BSC502B	Mechanics							
BSC502C	Linear Algebra							
BSC503	DSE-2A (Choose any one)							
BSC503A	Analytical Methods in Chemistry							
BSC503B	Novel Inorganic Solids							
BSC503C	Organometallics, Bioinorganic chemistry, Polynuclear hydrocarbons and UV, IR Spectroscopy	5	1	1	30	70	100	5
BSC503D	Chemistry of Main Group Elements, Theories of Acids and Bases							
BSC504	DSE-3A (Choose any one)							
BSC504A	Digital, Analog and Instrumentation							
BSC504B	Elements of Modern Physics	5	1	1	30	70	100	5
BSC504C	Mathematical Physics							
BSC504D	Solid State Physics							

<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC505	DSE-2A (Choose any one)							
BSC505A	Analytical Methods in Chemistry Lab							
BSC505B	Novel Inorganic Solids Lab							
BSC505C	Organometallics, Bioinorganic chemistry, Polynuclear hydrocarbons and UV, IR Spectroscopy Lab	-	-	4	30	20	50	2
BSC505D	Chemistry of Main Group Elements, Theories of Acids and Bases Lab							
BSC506	DSE-3A (Choose any one)							
BSC506A	Digital, Analog and Instrumentation Lab							
BSC506B	Elements of Modern Physics Lab	-	-	4	30	20	50	2
BSC506C	Mathematical Physics Lab							
BSC506D	Solid State Physics Lab							
TOTAL		19	-	8	180	320	500	23

BACHELOR OF SCIENCE
SIXTH SEMESTER

THEORY PAPERS		No. of Teaching Hours			Marks Allocation			
Code	Subject/Paper	L	T	P	IA	EA	Total	Credits
BSC601	SEC-4 (Choose any one)							
BSC601A	Transportation and Game Theory							
BSC601B	Graph Theory							
BSC601C	Applied optics	3	-	-	30	70	100	3
BSC601D	Basic instrumentation skills							
BSC601E	Chemical Technology & Society							
BSC601F	Fuel Chemistry							
BSC602	DSE-1B (Choose any one)							
BSC602A	Numerical Methods							
BSC602B	Complex Analysis	6	-	-	30	70	100	6
BSC602C	Linear Programming)							
BSC603	DSE-2B (Choose any one)							
BSC603A	Polymer Chemistry							
BSC603B	Green Chemistry	5	-	-	30	70	100	5
BSC603C	Instrumental Methods of Analysis							
BSC603D	Quantum Chemistry, Spectroscopy & Photochemistry							
BSC604	DSE-3B (Choose any one)							
BSC604A	Quantum Mechanics							
BSC604B	Embedded System: Introduction to microcontroller	5	2*	-	30	70	100	5 (+2*)
BSC604C	Nuclear and Particle Physics (Theory + Tutorials 2*)							
BSC604D	Medical Physics							

<i>PRACTICALS/VIVA-VOCE</i>		No. of Teaching Hours			Sessional	Practical	Total	Credits
BSC605	DSE-2B (Choose any one)							
BSC605A	Polymer Chemistry Lab							
BSC605B	Green Chemistry Lab	-	-	4	30	20	50	2
BSC605C	Instrumental Methods of Analysis Lab							
BSC605D	Quantum Chemistry, Spectroscopy & Photochemistry Lab							
BSC606	DSE-3B (Choose any one)							
BSC606A	Quantum Mechanics Lab							
BSC606B	Embedded System: Introduction to microcontroller Lab	-	-	4	30	20	50	2
BSC606C	Nuclear and Particle Physics Lab							
BSC606D	Medical Physics Lab							
TOTAL		19	-	8	180	320	500	23

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