

**V.S.M. COLLEGE (AUTONOMOUS)**

**RAMACHANDRAPURAM**

**NAAC Re-accredited with 'B' Grade at 2.69 CGPA**

**(Affiliated to Adikavi Nannaya University, Rajamahendravaram)**



**B.VOC**

**COURSE STRUCTURE**

**(W.e.f. admitted batch 2019 –20)**



# VSM COLLEGE

**AUTONOMOUS**

Re-accredited with 'B' Grade by NAAC, CPE Status

(Affiliated to AdiKavi Nannaya University)

**RAMACHANDRAPURAM-533255**

**Programme course structure for CBCS (Batch 2019-2022)**

**B.VOC COMMERCIAL AQUACULTURE**

SEMESTER - I								
Course code	Course Name	Hours			Credits	Marks		
		L	T	P		Int	Exn	Tot
1916101	Biology of fishes	4			3	25	75	100
1916102	Principles and Methods in Aquaculture	4			3	25	75	100
1916103	Fresh water Aquaculture	4			3	25	75	100
1916101P	Identification of Cultivable Fishes and Aquatic Weeds Lab - I			2	2		50	50
1916102P	Identification of Cultivable Fishes and Aquatic Weeds Lab - II			2	2		50	50
1916103P	Water and Soil Quality Parameters Lab			2	2		50	50
1916201	Animal Diversity - Non Chordates	2			2		50	50
1916201P	Animal Diversity - Non Chordates Lab			2	2		50	50

**SEMESTER - II**

Course code	Course Name	Hours			Credits	MARKS		
		L	T	P		Int	Exn	Tot
1926104	Brackishwater Aquaculture & Mariculture	4			4	25	75	100
1926105	Hatchery Management and Aquatic organisms	4			4	25	75	100
1926106	Fishing Methods	4			4	25	75	100
1926104P	Identification of planktons and crustaceans Lab -I			2	2		50	50
1926105P	Identification of planktons and crustaceans Lab-II			2	2		50	50
1926106P	On Job Training			30	6		100	100
1926202	Animal Diversity - Chordates	2			2		50	50
1926202P	Animal Diversity - Chordateslab			2	2		50	50

**SEMESTER - III**

Course code	Course Name	Hours			Credits	MARKS		
		L	T	P		Int	Exn	Tot
1936107	Inland and Marine fisheries	4			4	25	75	100
1936108	Bio-Statistics and Computer Application	4			4	25	75	100
1936109	Aquaculture Nutrition	4			4	25	75	100
1936107P	Water and soil Quality Parameters Lab-II			2	2		50	50
1936109P	Feed Analysis, Fish Pathology & Aquarium fishes Lab-1			2	2		50	50
1936203	Cytology, Genetics & Evolution	2			2		50	50
1936203P	Cytology, Genetics & Evolution Lab			2	2		50	50

<b>SEMESTER - IV</b>								
<b>Course code</b>	<b>Course Name</b>	<b>Hours</b>			<b>CREDITS</b>	<b>MARKS</b>		
		<b>L</b>	<b>T</b>	<b>P</b>				
1946110	Genetics and aquaculture Biotechnology	4			4	25	75	100
1946111	Pathology in Aquaculture	4			4	25	75	100
1946112	Ornamental Fish culture	4			4	25	75	100
1946111P	Feed Analysis, Fish Pathology & Aquarium Fishes Lab -2			2	2		50	50
1946113P	On Job Training			30	6		100	100
1946204P	Embryology, Physiology & Ecology	2			2		50	50
1946204P	Embryology, Physiology & Ecology Lab			2	2		50	50

<b>SEMESTER - IV</b>								
<b>Course code</b>	<b>Course Name</b>	<b>Hours</b>			<b>CREDITS</b>	<b>MARKS</b>		
		<b>L</b>	<b>T</b>	<b>P</b>				
1956114	Fishery microbiology and by-products	4			4	25	75	100
1956115	Fish processing technology and quality control	4			4	25	75	100
1956114P	Fishery microbiology and by-products LAB			2	2		50	50
1956115P	Fish processing technology and quality control LAB			2	2		50	50
1956116	PROJECT			30	2		100	100

<b>SEMESTER - VI</b>								
<b>Course code</b>	<b>Course Name</b>	<b>Hours</b>			<b>Credits</b>	<b>Marks</b>		
		<b>L</b>	<b>T</b>	<b>P</b>		<b>Int</b>	<b>Exn</b>	<b>Tot</b>
1966117	Aquaculture engineering	4			4	25	75	100
1966118	Fisheries' economics and marketing	4			4	25	75	100
1966119p	Project work			30	2		100	100
1966117p	Aquaculture engineering lab			2	2		50	50
1966118p	Fisheries economics and marketing lab			2	2		50	50



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**B.Sc. PROGRAMME - COURSE STRUCTURE IN CHEMISTRY**  
**UNDER CBCS 2020 – 21**

Semester number	Paper & Title of the paper	Paper code	Instruction hours/week	No. of Credits	Duration of the examination (hours)	Assessment		Total Marks
						(CIA) Internal	(SEE) External	
I	Paper - I: Inorganic and physical Chemistry	2012301	4	4	3	40	60	100
I	Practical - I: Analysis of Salt Mixture lab	2012301P	2	1	3	-	50	50
II	Paper - II: Organic and General Chemistry	2022302	4	4	3	40	60	100
II	Practical - II: Volumetric Analysis lab	2022302P	2	1	3	-	50	50

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**UNDER CBCS 2020 – 21**

Semester number	Paper & Title of the paper	Paper code	Instruction hours/week	No. of Credits	Duration of the examination (hours)	Assessment		Total Marks
						(CIA) Internal	(SEE) External	
III	Paper - III: Inorganic and Organic Chemistry-2	1632303	4	3	3	25	75	100
III	Practical - III: Titrimetric analysis and Organic Functional Group Reactions lab	1632303P	2	2	3	-	50	50
IV	Paper - IV: Spectroscopy and Physical Chemistry	1642304	4	3	3	25	75	100
IV	Practical - IV: Physical Chemistry and IR Spectral Analysis lab	1642304P	2	2	3	-	50	50
V	Paper - V: Inorganic, Organic and Physical Chemistry-1	1652305	3	3	3	25	75	100
V	Practical - V: Organic Chemistry lab	1652305P	2	2	3	-	50	50
V	Paper - VI: Inorganic, Organic and Physical Chemistry-2	1652306	3	3	3	25	75	100
V	Practical - VI: Physical Chemistry lab	1652306P	2	2	3	-	50	50
VI	Paper - VII: Elective-A Analytical Methods in Chemistry	1662307	3	3	3	25	75	100
VI	Practical – VII A Analytical Methods in Chemistry lab	1662307P	2	2	3	-	50	50
VI	Paper - VII: Elective-B Environmental Chemistry	1662308	3	3	3	25	75	100
VI	Practical – VII B Water Analysis lab	1662308P	2	2	3	-	50	50

VI	Paper - VII: Elective-C Green Chemistry	1662309	3	3	3	25	75	100
VI	Practical – VII C Green Chemistry lab	1662309P	2	2	3	-	50	50
VI	Cluster-A A-1 Polymer Chemistry	1662310	3	3	3	25	75	100
VI	Practical – VIII A-1 Organic Preparations lab	1662310P	2	2	3	-	50	50
VI	Cluster-A A-2 Instrumental Methods of Analysis	1662311	3	3	3	25	75	100
VI	Practical – VIII A-2 Instrumental Methods of Analysis lab	1662311P	2	2	3	-	50	50
VI	Cluster-A A-3 Analysis of Drugs, Foods, Dairy Products & Bio-chemical Analysis	1662312	3	3	3	25	75	100
VI	Project	1662312P	2	2	3	-	50	50
VI	Cluster-B B-1 Fuel Chemistry and Batteries	1662313	3	3	3	25	75	100
VI	Practical – VIII B-1 Organic Preparations lab	1662313P	2	2	3	-	50	50
VI	Cluster-B B-2 Inorganic Materials of Industrial Importance	1662314	3	3	3	25	75	100
VI	Practical – VIII B-2 Instrumental Methods of Analysis lab	1662314P	2	2	3	-	50	50
VI	Cluster-B B-3 Analysis of Applied Industrial Products	1662315	3	3	3	25	75	100
VI	Project	1662315P	2	2	3	-	50	50
VI	Cluster-C C-1 Organic Spectroscopic Techniques	1662316	3	3	3	25	75	100
VI	Practical – VIII C-1 Organic Preparations lab	1662316P	2	2	3	-	50	50
VI	Cluster-C C-2 Advanced Organic Reactions	1662317	3	3	3	25	75	100
VI	Practical – VIII C-2 Instrumental Methods of Analysis lab	1662317P	2	2	3	-	50	50
VI	Cluster-C C-3 Pharmaceutical & Medicinal Chemistry	1662318	3	3	3	25	75	100
VI	Project	1662318P	2	2	3	-	50	50





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**ZOOLOGY COURSE STRUCTURE 2020-2021**

Semester	Paper	Title	Paper Code	Hrs	Credits	CIA	SEE	Total
<b>First Year</b>								
I	I	Animal Diversity-I Biology of Non-Chordates	2012601	4	4	40	60	100
		Animal Diversity-I Biology of Non-Chordates Practical-I	2012601-P	2	1	0	50	50
II	II	Animal Diversity-II Biology of Chordates	2012602	4	4	40	60	100
		Animal Diversity-I Biology of Chordates Practical-II	2012602-P	2	1	0	50	50
III	III	Cell Biology,Genetics ,Molecular Biology & Evolution	2032603	04	04	40	60	100
		Cell Biology,Genetics ,Molecular Biology & Evolution Lab	2032603 P	02	01	0	50	50
IV	IV	Animal Physiology,Cellular metabolism &Embryology	2042604	04	04	40	60	100
		Animal Physiology,Cellular metabolism &Embryology Lab	2042604 P	02	01	0	50	50
	V	Immunology and	2042605	04	04	40	60	100

		Animal BioTechnology						
		Immunology and Animal BioTechnology Lab	2042605 P	02	01	0	50	50

**ZOOLOGY COURSE STRUCTURE UNDER CBCS  
III BSc BZC ZOOLOGY**

SEM ESTER	PAPER	PAPER CODE	TITLE OF THE PAPER	HOURS / WEEK	CREDITS	CI A	SEE	TOTAL 75+ 25	
V	V	1612605	Animal Biotechnology	03	03	25	75	100	
		1612605P	Animal Biotechnology Lab	02	02		50	50	
	VI	1612606	Animal Husbandry	03	03	25	75	100	
		1612606P	Animal Husbandry Lab	02	02		50	50	
*Any one Paper from A, B and C** Any one cluster from I, II and III	VII (A)*	1612607	Immunology	03	03	25	75	100	
		1612607P	Immunology Lab	02	02		50	50	
	VI (B)*	1612608	Cellular Metabolism and Molecular Biology	03	03	25	75	100	
		1612608P	Cellular Metabolism and Molecular Biology Lab	02	02		50	50	
	VII (C)*	1612609	Bioinformatics	03	03	25	75	100	
		1612609P	Bioinformatics Lab	02	02		50	50	
	Cluster VIII - A*	<b>Cluster Electives –VIII-A : Medical Diagnostics</b>							
		1612610	1. Clinical Biochemistry	03	03	25	75	100	
		1612610P	Clinical Biochemistry Lab	02	02		50	50	
		1612611	2. Haematology	03	03	25	75	100	
		1612611P	Haematology Lab	02	02		50	50	
		1612612	3. Haematology	03	03	25	75	100	
		1612612P	Haematology Project Work	02	02		50	50	
	Cluster VIII - B*	<b>Cluster Electives –VIII-B : Aquaculture</b>							
1612613		1. Principles of Aquaculture	03	03	25	75	100		
1612613P		Principles of Aquaculture Lab	02	02		50	50		
1612614		2. Aquaculture Management	03	03	25	75	100		
1612614P		Aquaculture Management Lab	02	02		50	50		
1612615		3. Postharvest Technology	03	03	25	75	100		
1612615P	Postharvest Technology Project	02	02		50	50			
Cluster VIII - C*	<b>Cluster Electives – VIII-C : Sericulture</b>								
	1612616	1. Gen. Sericulture, Mulberry cultivation and Management	03	03	25	75	100		
	1612616P	Gen. Sericulture, Mulberry Cultivation and Management Lab	02	02		50	50		
	1612617	2. Biology of Mulberry Silkworm and Silkworm rearing Technology	03	03	25	75	100		
	1612617P	Biology of Mulberry Silkworm and Silkworm rearing Technology Lab	02	02		50	50		
	1612618	3. Silk Technology, Silk Marketing and	03	03	25	75	100		

		Extension					
	1612618P	Silk Technology, Silk Marketing and Extension Lab	02	02		50	50

**VSM COLLEGE (A), RAMACHANDRAPURAM**

**BSC AQUACULTURE TECHNOLOGY SEMESTER V & VI**  
**CORE STRUCTURE 2020-2021**

<i>Semester</i>	<i>Paper</i>	<i>Title</i>	<i>Paper Code</i>	<i>Hrs</i>	<i>Credits</i>	<i>CIA</i>	<i>SEE</i>	<i>Total</i>
<i>FirstYear</i>								
<i>I</i>	<i>I</i>	Basic principles of aquaculture	2012701	4	4	40	60	100
		Basic principles of aquaculture practical	2012701P	2	1	0	50	50
<i>II</i>	<i>II</i>	Biology of finfish and shell fish	2022702	4	4	40	60	100
		Biology of finfish and shell fish practical	2022702P	2	1	0	50	50
<i>III</i>	<i>III</i>	Fish nutrition and feed technology	1632703		3	25	75	100
		Fish nutrition and feed technology Practical	1632703 P		2	0	50	
<i>IV</i>	<i>IV</i>	Freshwater and brackish water aquaculture	1642704		3			
		Freshwater and brackish water aquaculture Practical	1642704 P		2	0	50	

S. n o	Year	Semester	Paper	Papertitle	Paper Code	Hrs	Credits	CIA	SEE	Marks
1.		V	V	Fish health management	1652705	4	3	25	75	100
				Practical	1652705P	2	2	0	50	50
			VI	Fisheries Extension, economics and marketing	1652706	4	3	25	75	100
				Practical	1652706P	2	2	0	50	50
			VII(A)	Ornamental fishery	1662707	3	3	25	75	100
				Practical	1662707P	2	2	0	50	50
			VII(B)	Fishery	166270	3	3	25	75	100

				Engineering	8				
				Practical	166 270 8P	2	2	0	50 50
2.		VI	VII I-I	cluster Elective1 Fish processing Technology					
			VII I-I	Fish processing technology -IA	166 270 9	3	3	25	75 100
				Practical VIII	166 270 9p	2	2	0	50 50
			I I	Fishery Microbiology and Fishery by- productsI-B	1662710	3	3	25	75 100
				Practical	166 271 0P	2	2	0	50 50
			III	Quality control in processin	1662711	3		25	75



		<b>g plants</b>						
		<b>Practical VIII</b>	166 271 1P	2	2	0	50	50
<b>VII I-II</b>		<b>Cluster elective-II Coastal</b>						

		<b>aquaculture</b>		Hrs				
<b>I</b>		<b>Crustacean aqua culture II-A</b>	1662712	3	3	25	75	100
		<b>Practical VIII</b>	1662712P	2	2	0	50	50
<b>II</b>		<b>Marine fin fish II-C</b>	1662713	3	3	25	75	100
		<b>Practical-VIII</b>	1662713P	2	2	0	50	50
<b>II I</b>		<b>Molluscan and seaweed culture.II</b>	1662714	3	3	25	75	100
		<b>-B</b>	1662714P	2	2	0	50	50