


# IDEAL COLLEGE OF ARTS & SCIENCES: KAKINADA

(Autonomous & NAAC B)

Dr. P.V.N.RAJU VIDYAPRANGANAM

## B.A./B.Sc. Mathematics COURSE STRUCTURE 2022-23

Semester	Paper	Subject	Hrs	Credits	IA	ES	Total	
<b>FIRST YEAR</b>								
SEMESTER I	Paper-I	Differential Equations & Differential Equations Problem Solving Sessions	6	5	40	60	100	
SEMESTER II	Paper-II	Solid Geometry & Solid Geometry Problem Solving Sessions	6	5	40	60	100	
<b>First Internship</b>								
<b>SECOND YEAR</b>								
SEMESTER III	Paper-III	Abstract Algebra & Abstract Algebra Problem Solving Sessions	6	5	30	70	100	
		APSCHE Life Skills Courses Analytical Skills	2	2	-	50	50	
SEMESTER IV	Paper-IV	Real Analysis & Real Analysis Problem Solving Sessions	6	5	30	70	100	
	Paper-V	Linear Algebra & Real Analysis Problem Solving Sessions	6	5	30	70	100	
<b>Second Internship</b>								
<b>THIRD YEAR</b>								
SEMESTER V	Paper- VI (A)	Numerical Methods	6	5	30	70	100	
	Paper- VII (A)	Mathematical Special Functions	6	5	30	70	100	
	(Or)							
	Paper- VI (B)	Multiple integrals and Applications of Vector Calculus	6	5	30	70	100	
	Paper- VII (B)	Integral transforms with Applications	6	5	30	70	100	

  
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	(Or)						
	Paper- VI (C)	Partial Differential Equations and Fourier Series	6	5	30	70	100
	Paper-VII (C)	Number theory	6	5	30	70	100

SEMESTER VI


Third internship

- \*Candidate has to choose only one pair from VI(A)&VII(A) or VI(B)&VII(B) or VI(C)&VII(C)
- \* First internship (April-May after 1st year examinations): Community Service Project.
- \* Second Internship (April-May after 2nd year examinations): Apprenticeship / Internship / On the job training / In-house Project / Off-site Project.
- \* Third internship (5th/6thSemester period): Assessment model for the semester long apprenticeship / on the job training / internships during the VI Semester.

  
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 Department of Mathematics  
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**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**PHYSICS COURSE STRUCTURE UNDER CBCS**  
**2022-2023**


Year	Semester	Paper	Title	Marks	Credits	
I	I	I	Mechanics, waves and oscillations	100	04	
			Practical	50	01	
		Skill Development	Electrical Appliances	50	02	
	II	II	II	Waves optics	100	04
				Practical	50	01
		Skill Development	Solar Energy	50	02	
			<b>Community Service Project</b>	100	04	
II	III	III	Heat and Thermodynamics	100	03	
			Practical	50	02	
	IV	IV	Electricity magnetism & Electronics.	100	04	
			Practical	50	01	
		V	Modern Physics	100	04	
			Practical	50	01	
	<b>Short Term Internship</b>	100	04			
	III	V	6A	Optical Instruments and Optometry	100	03
Practical				50	02	
7A			Optical Imaging and Photography	100	03	
			Practical	50	02	
6B			Low Temperature physics & Refriseration	100	03	
			Practical	50	02	
7B			Solar Energy & Applications	100	03	
			Practical	50	02	
6C			Applications of Electrics & Eleyronics	100	03	
			Practical	50	02	
7C			Electronic Instrumentation	100	03	
			Practical	50	02	
VI		<b>Long Term Internship</b>	200	12		

  
**Head of the Department of Physics**  
**IDEAL COLLEGE OF ARTS AND SCIENCES**  
**KAKINADA - 533 004**



**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**CHEMISTRY COURSE STRUCTURE UNDER CBCS**  
**2022-2023**

Year	Semester	Paper	Title	Marks	Credits	
I	I	I	Inorganic and Physical Chemistry	100	03	
			Practical - I	50	02	
	II	II	Organic and General chemistry	100	03	
			Practical - II	50	02	
			<b>Community Service Project</b>	<b>100</b>	<b>04</b>	
II	III	III	Organic chemistry and Spectroscopy	100	03	
			Practical - III	50	02	
	IV	IV	Inorganic, Organic and Physical chemistry	100	03	
			Practical - IV	50	02	
	V	V	Inorganic and Physical Chemistry	100	03	
			Practical - V	50	02	
			<b>Short Term Internship</b>	<b>100</b>	<b>04</b>	
III	V Any one Pair of VI & VII A, B, C,D,E	VI - A	Synthetic Organic Chemistry	100	03	
			Practical - VI - A	50	02	
		VII - A	VII - A	Analysis of Organic Compounds	100	03
				Practical - VII - A	50	02
		VI - B	VI - B	Analytical methods in Chemistry - 1	100	03
				Practical - VI - B	50	02
		VII - B	VII - B	Analytical methods in Chemistry - 2	100	03
				Practical - VII - B	50	02
		VI - C	VI - C	Industrial Chemistry - 1	100	03
				Practical - VI - C	50	02
		VII - C	VII - C	Industrial Chemistry - 2	100	03
				Practical - VII - C	50	02
		VI - D	VI - D	Environmental Chemistry	100	03
				Practical - VI - D	50	02
		VII - D	VII - D	Green Chemistry and Nano Technology	100	03
				Practical - VII - D	50	02
		VI - E	VI - E	Analytical methods in Chemistry	100	03
				Practical - VI - E	50	02
		VII - E	VII - E	Cosmetics and Pharmaceutical Chemistry	100	03
				Practical - VII - E	50	02
VI		<b>Long Term Internship</b>	<b>200</b>	<b>12</b>		

  
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# IDEAL COLLEGE OF ARTS & SCIENCES : KAKINADA

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## Department of Computer Science

### Structure of Computer Science Syllabus 2022-2023

Semester	Paper Code	Subject	Hrs./ Week	Credits	IA	ES	Total	
<b>I B.Sc. Computer Science Syllabus under CBCS w.e.f. 2020-2021 Batch</b>								
I	C1	Problem Solving in C	4	3	40	60	100	
	C1-P	Problem Solving in C Lab	2	2		50	50	
II	C2	Data Structures using C	4	3	40	60	100	
	C2-P	Data Structures using C Lab	2	2		50	50	
		Community Service Project		4			100	
<b>II B.Sc. Computer Science Syllabus under CBCS w.e.f. 2020-2021 Batch</b>								
III	C3	Database Management Systems	4	3	30	70	100	
	C3-P	Database Management Systems Lab	2	2		50	50	
IV	C4	Object Oriented Programming using Java	4	3	30	70	100	
	C4-P	Object Oriented Programming using Java Lab	2	2		50	50	
	C5	Operating Systems	4	3	30	70	100	
	C5-P	Operating Systems Lab using C/Java	2	2		50	50	
		Short-term Internship		4			100	
<b>Skill Enhancement Courses (SECs)</b>								
<b>III B.Sc. Computer Science Syllabus under CBCS w.e.f. 2020-2021 Batch</b>								
V	6A	Web Interface Designing Technologies	3	3	30	70	100	
	6A-P	Web Interface Designing Technologies Lab	3	2		50	50	
	7A	Web Applications Development using PHP& MYSQL	3	3	30	70	100	
	7A-P	Web Applications Development using PHP& MYSQL Lab	3	2		50	50	
	6B	Internet of Things	3	3	30	70	100	
	6B-P	Internet of Things Lab	3	2		50	50	
	7B	Application Development using Python	3	3	30	70	100	
	7B-P	Application Development using Python Lab	3	2		50	50	
	6C	<b>Data science</b>	<b>3</b>	<b>3</b>	<b>30</b>	<b>70</b>	<b>100</b>	
	6C-P	<b>Data science Lab</b>	<b>3</b>	<b>2</b>		<b>50</b>	<b>50</b>	
	7C	<b>Python for Data science</b>	<b>3</b>	<b>3</b>	<b>30</b>	<b>70</b>	<b>100</b>	
7C-P	<b>Python for Data science Lab</b>	<b>3</b>	<b>2</b>		<b>50</b>			
VI		Long-term Internship		12			200	

*M. A. Sanyal*

Head of Department of Computer Science  
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**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**BOTANY COURSE STRUCTURE UNDER CBCS**  
**2022-2023**

Year	Semester	Paper	Title	Hours/ Week	Max. Marks(SEE)	Marks in CIA	Credits
I	I	I	Fundamentals of Microbes and Non-Vascular Plants	04	60	40	03
			Fundamentals of Microbes and Non-Vascular Plants - Lab	03	Max.Marks-50 internal assessment at semester end		02
	II	II	Basics of Vascular Plants and Phytogeography	04	60	40	03
			Basics of Vascular Plants and Phytogeography - Lab	03	Max.Marks-50 External assessment at semester end		02
			<b>Community Service Project</b>	—	100	04	
II	III	III	Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity	04	70	30	03
			Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity - Lab	03	Max.Marks-50 internal assessment at semester end		02
	IV	IV	Plant Physiology and Metabolism	04	70	30	03
			Plant Physiology and Metabolism - Lab	03	Max.Marks-50 External		02
		V	Cell Biology, Genetics and Plant Breeding	04	70	30	03
			Cell Biology, Genetics and Plant Breeding - Lab	03	Max.Marks-50 External assessment at semester end		02
			<b>Short Term Internship</b>	—	100	04	
	VI (A)	VI (A)	Plant Propagation	04	70	30	03
			Plant Propagation - Lab	03	Max.Marks-50 External		02
VII (A)		Seed Technology	04	70	30	03	
		Seed Technology - Lab	03	Max.Marks-50 External assessment at semester end		02	



Year	Semester	Paper	Title	Hours/ Week	Max. Marks(SEE)	Marks in CIA	Credits	
III	V	VI (B)	Vegetable crops-cultivation Practice	04	70	30	03	
			Vegetable crops-cultivation Practice - Lab	03	Max.Marks-50 External		02	
		VII (B)	Vegetable crops-post harvest practices	04	70	30	03	
			Vegetable crops-post harvest practices - lab	03	Max.Marks-50 External		02	
		VI (C)	Plant tissue culture	04	70	30	03	
			Plant tissue culture - Lab	03	Max.Marks-50 External assessment at semester end		02	
		VII (C)	Mushroom Cultivation	04	70	30	03	
			Mushroom Cultivation - Lab	03	Max.Marks-50 External assessment at semester end		02	
		VI (D)	Gardening, Landscaping	04	70	30	03	
			Gardening, Landscaping - lab	03	Max.Marks-50 External assessment at semester end		02	
		VII (D)	Agro Forestry	04	70	30	03	
			Agro Forestry - Lab	03	Max.Marks-50 External assessment at semester end		02	
		VI		<b>Long Term Internship</b>	-	200		12

D. Dwrga Bhawani

Head of I.L.L. partmer  
Department of Botany  
Ideal College of Arts & Science  
KAKINATA

# IDEAL COLLEGE OF ARTS & SCIENCES

(Autonomous, NAAC Accredited B)

Dr. PVN RAJU VIDYAPRANGANAM

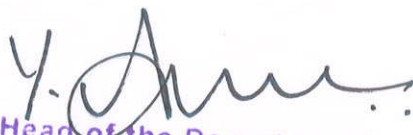
Samalkot Road, KAKINADA

## ZOOLOGY COURSE STRUCTURE UNDER CBCS 2022-2023

YEAR	SEMESTER	PAPER	TITLE	MARKS	CREDI TS
I	I	I	Animal Diversity – Biology of Non - chordates	100	03
			Practical - I	50	02
	II	II	Animal Diversity – Biology of chordates	100	03
			Practical - II	50	02
				<b>Community Service Project</b>	100
	II	III	III	Cell biology, Genetics, Molecular Biology & Evolution	100
Practical - III				50	02
IV		IV	Animal Physiology, cellular metabolism and embryology	100	03
			Practical - IV	50	02
		V	Immunology & Animal Biotechnology	100	03
			Practical - V	50	02
			<b>Short Term Internship</b>	100	04
III		V	VIA	Sustainable Aquaculture Management	100
			Practical	50	2
	VIIA		Post-Harvest Technology of Fish and Fisheries	100	03
			Practical	50	2
		(OR)			
	V	VIB	Live Stock Management – I (Biology of Dairy Animals)	100	03
			Practical	50	2
		VIIB	Live Stock Management – II (Dairy Production and Management)	100	03

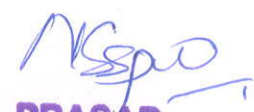


<b>III</b>	(OR)				
	V	VIC	Poultry Management – I (Poultry Farming)	100	03
			Practical	50	2
		VIIC	Poultry Management – II (Poultry Production and Management)	100	03
			Practical	50	2
	(OR)				
	V	VID	Seri Culture – I	100	03
			Practical	50	2
		VIID	Seri Culture – II	100	03
			Practical	50	2
	VI		<b>Long Term Internship</b>	200	12

  
 Head of the Department,  
 Department of Zoology,  
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**IDEAL COLLEGE OF ARTS AND SCIENCES(A)  
HISTORY COURSE STRUCTURE UNDER CBCS  
2022-2023**

Year	Semester	Title	Max. Marks	Credits
I	I	ANCIENT INDIAN HISTORY & CULTURE	100	04
	II	Medieval Indian History & Culture	100	04
		Community Service Project	100	04
II	III	Modern Indian History	100	04
	IV	History and Culture of Andhra		
		History of Modern World	100	04
		Short Term Internship	100	04
III	V	Tourism and Hospitality Services	100	04
		Tourism Guidance and operating skills	100	04
		Long Term Internship	200	12

  
**N.S.S. PRASAD**  
 HOD-HISTORY  
 IDEAL COLLEGE OF ARTS AND SCIENCES(A)  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

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Samalkot Road – Kakinada

## DEPARTMENT OF ECONOMICS

### B.A ECONOMICS COURSE STRUCTURE 2022-2023

YEAR	Course	Semester	Title of the Paper	Hours / Week	Credits	Marks		
						Internals	Semester	
First Year	1	I	Micro Economics Analysis	5	4	40	60	
	2	II	Macro Economics Analysis	5	4	40	60	
			Community Service Project		4	100		
Second Year	3	III	Development Economics	5	4	30	70	
	4	IV	Economic Development in India and Andhra Pradesh	5	4	30	70	
	5	IV	Statistical Methods for Economics	5	4	30	70	
			Short Term Internship		4	100		
Third Year	6A	V	Rural Entrepreneurship	5	4	25	75	
	7A	V	Farmer Producer Organisation	5	4	25	75	
	(OR)							
	6B	V	Urban Entrepreneurship and MSMEs	5	4	25	75	
	7B	V	Retail and Digital Marketing	5	4	25	75	
	(OR)							
	6C	V	Insurance Services	5	4	25	75	
	7C	V	Banking and Financial Services	5	4	25	75	
	(OR)							
	6D	V	Inferential Statistics and Software Packages	5	4	25	75	
	7D	V	Project Designing and Report Writing	5	4	25	75	
		VI	Long Term Internship		12	200	Marks	

*G. Steeven Raju*

**Dr. G. STEEVEN RAJU**

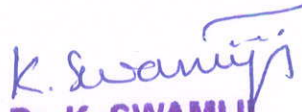
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**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**POLITICAL SCIENCE COURSE STRUCTURE UNDER CBCS**  
**2022-2023**

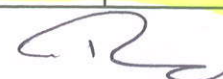
Year	Semester	Title	Max. Marks	Credits
I	I	Introduction to Political Science	100	04
	II	Basic Organs of the Government	100	04
		Community Service Project	100	04
II	III	Indian Government and Politics	100	04
	IV	Indian Political Process		
		Wastern Political Thought	100	04
		Short Term Internship	100	04
III	V	E - Governance	100	04
	VI	Local Administration	100	04
		Long Term Internship	200	12

  
**Dr. K. SWAMIJI**  
**HOD-POLITICAL SCIENCE**  
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**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**COMMERCE COURSE STRUCTURE UNDER CBCS**  
**2022-2023**

Year	Semester	course No	Title	Max. Marks	Credits
I	I	1A	Fundamentals of Accounting	100	04
		1B	Business Organization and Management	100	04
		1C	Business Environment	100	04
	II	2A	Financial Accounting	100	04
		2B	Business Economics	100	04
		2C	Banking Theory & Practice	100	04
			<b>Community Service Project</b>	<b>100</b>	<b>04</b>
II	III	3A	Advanced Accounting	100	04
		3B	Business Statistics	100	04
		3C	Marketing	100	04
	IV	4A	Corporate Accounting	100	04
		4B	Cost and Management Accounting	100	04
		4C	Income Tax	100	04
		4D	Business Laws	100	04
		4E	Auditing	100	04
		4F	Goods and service tax	100	04
			<b>Short Term Internship</b>	<b>100</b>	<b>04</b>
III	V	16A	Advanced Corporate Accounting	100	04
		16B	Advertising and Media Planning	100	04
		16C	Digital Marketing	100	04
		17A	Software Solutions to Accounting	100	04
		17B	Sales Promotion and Practice	100	04
		17C	Service Marketing	100	04
		18A	Management Accounting	100	04
		18B	Logistics Services and Practice	100	04
		18C	Income Tax Procedure & Practice	100	04
		19A	Cost Control Techniques	100	04
		19B	EXIM Procedure and practice	100	04
		19C	GST Procedure & Practice	100	04
		20A	Stock Markets	100	04
		20B	Life Insurance with Practice	100	04
		20C	E Commerce	100	04
		21A	Stock Market Analysis	100	04
		21B	General Insurance with practice	100	04
		21C	E filing	100	04
		VI		<b>LONG TERM INTERNSHIP</b>	<b>200</b>

V. Nam   
**H.O.D. of Commerce Department**  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)

DR.P.V.RAJU VIDYAPRANGANAM

KAKINADA-533002

DEPARTMENT OF AGRICULTURE  
Course structure under CBCS (2022-23)

B. Voc – Agriculture

Year	Semester	Title	Max. Marks	Credits
I	I	Introduction to soil science	100	4
		Introduction to agronomy	100	4
		Principles of plant breeding		
	II	Introduction to plant pathology	100	4
		Crop physiology	100	4
		Introduction to Entomology	100	4
		Community service project	100	4
II	III	Agronomy of field crops	100	4
		Manures, fertilizers and soil fertility management	100	4
		Agricultural economics and farm management	100	4
	IV	Water management	100	4
		Principles of organic farming	100	4
		Farm power and machinery	100	4
		Short term internship	100	4

  
Head of the Department  
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Ideal College of Arts & Sciences (A)  
Kakinada



# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)

DR.P.V.RAJU VIDYAPRANGANAM


KAKINADA-533002

DEPARTMENT OF AGRICULTURE

Course structure under CBCS (2022-23)

B. Voc – Agriculture

Year	Semester	Title	Max. Marks	Credits
I	I	Seed science and technology	100	4
		Fundamentals of horticulture	100	4
		Fundamentals of agronomy	100	4
	II	Seed science and technology	100	4
		Fundamentals of soil science	100	4
		Entomology	100	4
		Community service project	100	4
II	III	Agronomy of field crops	100	4
		Manures, fertilizers and soil fertility management	100	4
		Agricultural economics and farm management	100	4
	IV	Pest of field crops and their management	100	4
		Water management	100	4
		Principle of organic farming	100	4
		Farm power and machinery	100	4
	Internship	100	4	
III	V	Principles of seed technology	100	4
		Diseases of field crops and their management	100	4
		Weed management	100	4
		Plant bio technology	100	4
	VI	Long term internship	200	12

  
Head of the Department  
AGRICULTURE  
Ideal College of Arts & Sciences (A)  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)

DR.P.V.RAJU VIDYAPRANGANAM

KAKINADA-533002

DEPARTMENT OF AGRICULTURE

Course structure under CBCS (2022-23)

B. Voc – Sustainable Agriculture

Year	Semester	Title	Max. Marks	Credits
I	I	Introduction to soil science	100	4
		Introduction to agronomy	100	4
		Principles of plant breeding		
	II	Introduction to plant pathology	100	4
		Crop physiology	100	4
		Introduction to Entomology	100	4
		Community service project	100	4
II	III	Agronomy of field crops	100	4
		Manures, fertilizers and soil fertility management	100	4
		Agricultural economics and farm management	100	4
	IV	Water management	100	4
		Principles of organic farming	100	4
		Farm power and machinery	100	4
		Short term internship	100	4

  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

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DR.P.V.RAJU VIDYAPRANGANAM


KAKINADA-533002

DEPARTMENT OF AGRICULTURE

Course structure under CBCS (2022-23)

B. Voc – Sustainable Agriculture

Year	Semester	Title	Max. Marks	Credits
I	I	Seed science and technology	100	4
		Fundamentals of horticulture	100	4
		Fundamentals of agronomy	100	4
	II	Seed science and technology	100	4
		Fundamentals of soil science	100	4
		Entomology	100	4
		Community service project	100	4
II	III	Agronomy of field crops	100	4
		Manures, fertilizers and soil fertility management	100	4
		Agricultural economics and farm management	100	4
	IV	Pest of field crops and their management	100	4
		Water management	100	4
		Principle of organic farming	100	4
		Farm power and machinery	100	4
		Internship	100	4
		III	V	Principles of seed technology
Diseases of field crops and their management	100			4
Weed management	100			4
Principles of land scape and gardening	100			4
VI	Long term internship		200	12

  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

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DR.P.V.RAJU VIDYAPRANGANAM


KAKINADA-533002

DEPARTMENT OF AGRICULTURE

Course structure under CBCS (2022-23)

B. sc Agricultural and Rural Development

Year	Semester	Title	Max. Marks	Credits
I	I	Principles of Agronomy	100	4
		Fundamentals of Horticulture	100	4
		Fundamentals of rural sociology and Educational Psychology	100	4
	II	Fundamentals of Soil science	100	4
		Principles of genetics and plant Breeding	100	4
		Fundamentals of Agriculture Extension	100	4

  
Head of the Department  
AGRICULTURE  
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**IDEAL COLLEGE OF ARTS AND SCIENCES**  
**(Autonomous & NAAC-B)**  
**DR.P.V.N.RAJU VIDYAPRANGANAM,KAKINADA**  
**Department of Fisheries**  
**B.Voc. Industrial Aquaculture and Fisheries**  
**Course Structure under CBCS (2022-2023)**

Year	Semester	Title	Max. Marks	Credits		
I	I	Biology of Fishes	100	04		
		Principles of Aquaculture	100	04		
		Fresh water Aquaculture	100	04		
	II	Biology of Shell fishes	100	04		
		Brackishwater Aquaculture and Mari culture	100	04		
		Fishing Methods	100	04		
<b>Community Service Project</b>		100	04			
II	III	Capture Fisheries	100	04		
		Aquaculture Nutrition	100	04		
		Fish Seed Production	100	04		
	IV	Fish Genetics and Aquaculture Production	100	04		
		Fish Pathology and Fish Immunology	100	04		
		Ornamental Fish Culture	100	04		
		Larval Nutrition and Culture of Fish food Organisms	100	04		
		<b>Internship</b>	100	04		
		III	V	Fishery By-Products	100	04
				Fish Processing Technology and Quality Control	100	04
Aquaculture Engineering	100			04		
Fisheries Management, Economics and Marketing	100			04		
<b>Long Term Internship</b>	200			12		
VI						

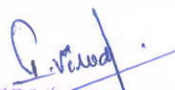
  
 Head of the Department  
 Aquaculture & Fisheries  
 Ideal College of Arts & Sciences (A)  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

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DR.P.V.N RAJU VIDYAPRANGANAM  
KAKINADA-533002

Department of Food Science and Technology  
Course structure under CBCS (2022-23)  
B.Sc. Food Technology

Year	Semester	Title	Max.Marks	Credits
I	I	Food production trends	100	04
		Chemistry 1	100	04
		Microbiology 1	100	04
	II	Basic principles of food preservation	100	04
		Chemistry 2	100	04
		Microbiology 2	100	04
<b>Community service project</b>		100	04	
II	III	Unit operations and material handling	100	04
		Chemistry 3	100	04
		Nutrition in health	100	04
	IV	Food quality management	100	04
		Chemistry 4	100	04
		Community nutrition	100	04
		Food additives	100	04
		Chemistry 5	100	04
		Food packaging	100	04
		<b>SHORT TERM INTERNSHIP</b>	100	04
III	V	Bakery and confectionary	100	04
		Plant food technology	100	04
		Dietetics	100	04
		Food packaging	100	04
		Animal food technology	100	04
		Food quality and analysis	100	04
	<b>LONG TERM INTERNSHIP</b>	200	12	
	VI			

  
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 Food Science & Technology  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

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DR.P.V.N RAJU VIDYAPRANGANAM

KAKINADA-533002

Department of Food science And Nutrition

Course structure under CBCS (2022-2023)

B.Voc-Food Processing and Quality Management

Year	Semester	Title	Max.Marks	Credits
I	I	Basic Food microbiology	100	04
		Food Chemistry	100	04
		Principles of Food Preservation	100	04
		Chemistry	100	02
		Food Science And Nutrition I	100	02
	II	Chemistry	100	03
		Basics of Food Engineering	100	04
		Food Science And Nutrition II	100	03
		Food Quality Management	100	04
		Processing Of Milk and Milk Products	100	04
		<b>Community Service Project</b>	100	04
II	III	Chemistry	100	03
		Food Additives	100	03
		Processing of Cereals, pulses and oil seeds	100	04
		Functional Foods And Nutraceuticals	100	04
		New Product Development And Sensory Science	100	04
	IV	Chemistry	100	03
		Food Safety And Microbial Standards	100	03
		Processing technology of Fruits And Vegetables	100	04
		Food Quality and Management	100	04
		Food Business Management	100	04
		<b>SHORT TERM INTERNSHIP</b>	100	04
III	V	Bakery And Confectionery	100	04
		Animal Food Technology	100	04
		Dietetics	100	04
		Food Packaging	100	04
		Analytical Methods Of Chemistry I	100	04
		Analytical Methods Of Chemistry II	100	04
				<b>LONG TERM INTERNSHIP</b>
	VI			

*G. Sundar*  
 Head of the Department  
 Food Science & Technology  
 Ideal College of Arts & Sciences (A)  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

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DR.P.V.N RAJU VIDYAPRANGANAM  
KAKINADA-533002

Department of Computer Science  
Course structure under CBCS (2022-23)  
B.Voc-Software Development

Year	Semester	Title	Max.Marks	Credits	
I	I	Applied Maths-I	100	04	
		Introduction to IT Tools	100	04	
		Photoshop and Flash	100	04	
		IT Foundations and Programming Concepts	100	04	
		Applied Maths-II	100	04	
	II	C Programming	100	04	
		Networking and Internet Applicatoins	100	04	
		Microsoft Advanced Excel	100	04	
		<b>Community Service Project</b>	100	04	
		Numerical Analysis	100	04	
II	III	Data Structures using C	100	04	
		Introduction to Python Programming	100	04	
		Object Oriented Programming Through JAVA	100	04	
		IV	Advanced Numerical Analysis	100	04
			Discrete Mathematical Structures	100	04
			Object Oriented Software Engineering	100	04
			Operating systems	100	04
	Web Programming		100	04	
	Basics of Cloud Computing		100	04	
	<b>SHORT TERM INTERNSHIP</b>		100	04	
	III	V	Machine Learning Using Python	100	04
			Database Management Systems	100	04
			Cyber Security and Malware Analysis	100	04
			Internet Of Things	100	04
Mobile Application Development			100	04	
Data Ware Housing and Data Minig			100	04	
VI			<b>LONG TERM INTERNSHIP</b>	200	12

*A.S.V. Reddy*  
Head of the Department  
Software Development (Computer Science)  
Ideal College of Arts & Sciences (A)  
Kakinada

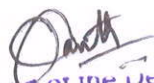


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DR.P.V.N RAJU VIDYAPRANGANAM  
KAKINADA-533002

Department of Computer Science  
Course structure under CBCS (2022-23)  
B.Sc Artificial Intelligence & Robotics

Year	Semester	Title	Max.Marks	Credits	
I	I	Mathematics-1	100	04	
		Physics-1	100	04	
		Web Technology	100	04	
	II	Mathematics-2	100	04	
		Physics-2	100	04	
		Artificial Intelligence	100	04	
		<b>Community Service Project</b>	<b>100</b>	<b>04</b>	
II	III	Mathematics-3	100	04	
		Physics-3	100	04	
		Expert System	100	04	
	IV	Mathematics-4	100	04	
		Mathematics-5	100	04	
		Physics-4	100	04	
		Physics-5	100	04	
		Fundamentals of IOT and Robotics	100	04	
		Machine Learning	100	04	
		<b>SHORT TERM INTERNSHIP</b>	<b>100</b>	<b>04</b>	
	III	V	Mathematics-6(A)	100	04
			Mathematics-(6B)	100	04
			Physics-(6A)	100	04
Physics-(6B)			100	04	
Data ware housing and mining			100	04	
Data Analytics with R			100	04	
VI		<b>LONG TERM INTERNSHIP</b>	<b>200</b>	<b>12</b>	


  
Head of the Department  
A.I. & Robotics (Computer Science)  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)  
DR.P.V.N RAJU VIDYAPRANGANAM  
KAKINADA-533002


Department of Management Studies  
Course structure under CBCS (2022-23)  
BBA (Digital Marketing)

Year	Semester	Title	Max. Marks	Credits	
I	I	Principals of Management	100	04	
		Managerial Economics	100	04	
		Fundamentals of Digital Marketing and Digital Markets	100	04	
		Basic Computer Applications	50	02	
		Insurance Promotion	50	02	
	II	Accounting for Managers	100	04	
		Digital and Social Media Marketing	100	04	
		E- commerce	100	04	
		ICT	50	02	
		Business Communication	50	02	
		Advertising	50	02	
		<b>Community Service Project</b>	<b>100</b>	<b>04</b>	
	II	III	Organizational Behavior	100	04
Search Engine Optimization			100	04	
Financial Management			100	04	
Analytical Skills			50	02	
Environmental Education			50	02	
Online Business			50	02	
Training and Development			100	04	
IV		Business Law	100	04	
		Micro, Small, Medium Enterprises Management	100	04	
		International Business	100	04	
		Search Engine Marketing & Affiliate Marketing	100	04	
		Cyber Law	100	04	
		<b>INTERNSHIP</b>	<b>100</b>	<b>04</b>	
		V	Product & Brand Management	100	04
			Sales Management	100	04
			Advanced SEO	100	04
			Web Analytics	100	04

  
 Head of the Department  
 BBA (Digital Marketing)  
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		HTML & CSS	100	04
		Web Designing & Planning	100	04
	VI	<b>LONG TERM INTERNSHIP</b>	<b>200</b>	<b>12</b>

  
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BBA (Digital Marketing)  
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# IDEAL COLLEGE OF ARTS & SCIENCES: KAKINADA

(A.P. Govt. Aided, Autonomous & NAAC B)


Dr. P.V.N.RAJU VIDYAPRANGANAM

## B.A./B.Sc. Mathematics COURSE STRUCTURE 2021-22

Semester	Paper	Subject	Hr	Credit	IA	ES	Total
<b>FIRST YEAR</b>							
SEMESTER I	Paper-I	Differential Equations & Differential Equations Problem Solving	6	5	30	70	100
SEMESTER II	Paper-II	Solid Geometry & Solid Geometry Problem Solving Sessions	6	5	30	70	100
<b>Community Service Project</b>							
<b>SECOND YEAR</b>							
SEMESTER III	Paper-III	Abstract Algebra & Abstract Algebra Problem Solving	6	5	30	70	100
SEMESTER IV	Paper-IV	Real Analysis & Real Analysis Problem Solving Sessions	6	5	30	70	100
		Linear Algebra & Real Analysis Problem Solving Sessions	6	5	30	70	100
<b>Short-term Internship</b>							
<b>THIRD YEAR</b>							
SEMESTER V	Paper-V	Ring Theory & Vector Calculus & Ring Theory & Vector Calculus Problem	6	5	25	75	100
SEMESTER V	Paper-VI	Linear Algebra & Linear Algebra Problem Solving Sessions	6	5	25	75	100
SEMESTER VI	Paper-VII	Elective (any one)* A. Laplace-Transformations B. Numerical Analysis C. Number Theory D. Graph Theory	5	5	25	75	100
		Cluster Electives: *** <b>VIII A.</b> 1. Integral Transformations & Problem Solving Sessions	5	5	25	75	100
	Paper-VIII	2. Special Functions & Problem Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100
		<b>VIII B.</b> 1. Advanced Numerical Analysis & Problem Solving Sessions	5	5	25	75	100
		2. special Functions & Problem Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100
		<b>VIII C.</b> 1. Principles of Mechanics & Problem Solving Sessions	5	5	25	75	100
		2. Fluid Mechanics & Problem Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100
		<b>VIII D.</b> 1. Applied Graph Theory & Problem Solving Sessions	5	5	25	75	100
		2. Special Function & Problem Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100

\*Candidate has to choose only one paper from VII(A) or VII(B) or VII(C) or VII(D)

\* Candidates are advised to choose Cluster (A) if they have chosen VII (A) and Choose Cluster (B) if they have chosen VII(B) etc. However, a candidate may choose any cluster irrespective of what they have Chosen in paper VII.

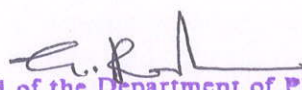
  
 Head of the Department  
 Department of Mathematics  
 IDEAL COLLEGE OF ARTS & SCIENCES  
 KAKINADA.



**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**PHYSICS COURSE STRUCTURE UNDER CBCS**  
**2021-2022**

Year	Semester	Paper	Title	Marks	Credits	
I	I	I	Mechanics, waves and oscillations	100	04	
			Practical	50	01	
		Skill Development	Electrical Appliances	50	02	
	II	II	II	Waves optics	100	04
				Practical	50	01
			Skill Development	Solar Energy	50	02
<b>Community Service Project</b>				100	04	
II	III	III	Heat and Thermodynamics	100	03	
			Practical	50	02	
	IV	IV	Electricity magnetism & Electronics.	100	04	
			Practical	50	01	
		V	Modern Physics	100	04	
			Practical	50	01	
			<b>Short Term Internship</b>	100	04	
	III	V	V	Electricity magnetism & Electronics.	100	03
Practical				50	02	
VI			Modern Physics	100	03	
			Practical	50	02	
VI any one paper from A,B and C any one cluster from I, II, and III		VII A	Anylos and digital electronics	100	03	
			Practical	50	02	
		VII A1	Introduction to micro procesolsand micro controller	100	03	
			Practical	50	02	
		VII A2	Computational Methods and programming	100	03	
			Practical	50	02	
		VII A3	Electronic Instrumentation	100	03	
			Practical	50	02	
		VII B	Material Science	100	03	
			Practical	50	02	
		VII B1	Fundamentals of Nano Science	100	03	
			Practical	50	02	
		VII B2	Synthesis and charactriztion of nano Materials	100	03	
			Practical	50	02	
		VII B3	Applications of Nano Materials and Devices	100	03	
Practical			50	02		
VII C		Renewable Energy	100	03		
		Practical	50	02		
VII C1		Solar thermal and photo voltaic aspects	100	03		
	Practical	50	02			
VII C2	Wind hydro energies	100	03			
	Practical	50	02			
VII C3	Energy Storage divices	100	03			
	Practical	50	02			

VII C2	Wind hydro energies	100	03
	Practical	50	02
VII C3	Energy Storage divices	100	03
	Practical	50	02


  
**Head of the Department of Physics**  
**IDEAL COLLEGE OF ARTS AND SCIENCE**  
**K A K I N A D A - 533 004.**



**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**CHEMISTRY COURSE STRUCTURE UNDER CBCS**  
**2021-2022**

Year	Semester	Paper	Title	Marks	Credits
I	I	I	Inorganic and Physical Chemistry	100	03
			Practical - I	50	02
	II	II	Organic and General chemistry	100	03
			Practical - II	50	02
			<b>Community Service Project</b>	<b>100</b>	<b>04</b>
II	III	III	Organic chemistry and Spectroscopy	100	03
			Practical - III	50	02
	IV	IV	Inorganic, Organic and Physical chemistry	100	03
			Practical - IV	50	02
		V	Inorganic and Physical Chemistry	100	03
			Practical - V	50	02
			<b>Short Term Internship</b>	<b>100</b>	<b>04</b>
	III	V	V	Inorganic, Organic and Physical chemistry	100
Practical-V				50	02
VI			Inorganic, Organic and Physical chemistry	100	03
			Practical -VI	50	02
VI Any one Elective paper from VII A, B, C		VII A	Elective: Analytical Method in Chemistry	100	03
			Practical- VII A	50	02
		VII B	Elective: Environmental Chemistry	100	03
			Practical: VII B	50	02
		VII C	Elective : Green Chemistry	100	03
			Practical -VII C	50	02
VIII A		VIII A	<b>Cluster Elective I:</b>		
			VIII-A-1 : Polymer Chemistry	100	03
			VIII-A-2: Instrumental Methods of Analysis	100	03
			VIII-A-3: Analysis of Drugs, Foods, Dairy Products & Biochemical Analysis	100	03
			Practical VIII-A-1	50	02
			Practical VIII-A-2	50	02
	<b>Project Work</b>		<b>50</b>	<b>02</b>	

Year	Semester	Paper	Title	Marks	Credits
	Any one Cluster from VIII A, B, C	VIII B	<b>Cluster Elective II:</b>		
			VIII - B-1 Fuel Chemistry and Batteries	100	03
			VIII - B-2 Inorganic materials of Industrial Importance	100	03
			VIII - B-3 Analysis of Industrial Products	100	03
			Practical VIII - B-1	50	02
			Practical VIII - B-2	50	02
			Project Work	50	02
		VIII C	<b>Cluster Elective II:</b>		
			VIII - C-1 Organic Spectroscopic Techniques	100	03
			VIII - C-2 Advanced Organic Reactions	100	03
			VIII - C-3 Pharmaceutical and Medicinal Chemistry	100	03
			Practical VIII - C-1	50	02
			Practical VIII - C-2	50	02
			Project Work	50	02

  
 Head of the Dept. of Chemistry  
 Ideal College of Arts & Sciences  
 KAKINADA




# IDEAL COLLEGE OF ARTS & SCIENCES : KAKINADA

(Autonomous, NAAC Accredited B, Affiliated to ANUR)

## Department of Computer Science

### Structure of Computer Science Syllabus 2021-2022

Semester	Paper Code	Subject	Hrs./ Week	Credits	IA	ES	Total
<b>I B.Sc. Computer Science Syllabus under CBCS w.e.f. 2020-2021 Batch</b>							
I	C1	Problem Solving in C	4	3	30	70	100
	C1-P	Problem Solving in C Lab	2	2		50	50
II	C2	Data Structures using C	4	3	30	70	100
	C2-P	Data Structures using C Lab	2	2		50	50
		Community Service Project		4			100
<b>II B.Sc. Computer Science Syllabus under CBCS w.e.f. 2020-2021 Batch</b>							
III	C3	Database Management System	4	3	30	70	100
	C3-P	Database Management System Lab	2	2		50	50
IV	C4	Object Oriented Programming using Java	4	3	30	70	100
	C4-P	Object Oriented Programming using Java Lab	2	2		50	50
	C5	Operating Systems	4	3	30	70	100
	C5-P	Operating Systems Lab using C/Java	2	2		50	50
		Short-term Internship		4			100
<b>III B.Sc. Computer Science Syllabus under CBCS w.e.f. 2015-2016 Batch</b>							
V	5	Database Management System	4	3	25	75	100
	5-P	Database Management System Lab	2	2		50	50
	6	Software Engineering	4	3	25	75	100
	6-P	Software Engineering Lab	2	2		50	50
VI	7	<u>Elective-I</u> Computer Networks	3	3	25	75	100
	7-P	Computer Networks Lab	2	2		50	50
	8A	<u>Elective-II (Cluster-A)</u> 3. Foundations of Data Science	3	3	25	75	100
	8A-P	Foundations of Data Science Lab (through R)	2	2		50	50
	8B	4. Big Data Technology	3	3	25	75	100
	8B-p	Big Data Technology Lab (Hadoop)	2	2		50	50
	8C	Project Work	5	5	25	75	100

  
 Head of Department of Computer Science  
 IDEAL COLLEGE OF ARTS & SCIENCES  
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**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**BOTANY COURSE STRUCTURE UNDER CBCS**  
**2021-2022**

Year	Semester	Paper	Title	Hours/ Week	Max. Marks(SEE)	Marks in CIA	Credits	
I	I	I	Fundamentals of Microbes and Non-Vascular Plants	04	70	30	03	
			Fundamentals of Microbes and Non-Vascular Plants - Lab	03	Max.Marks-50 internal assessment at semester end		02	
	II	II	Basics of Vascular Plants and Phytogeography	04	70	30	03	
			Basics of Vascular Plants and Phytogeography - Lab	03	Max.Marks-50 External assessment at semester end		02	
	<b>Community Service Project</b>				—	100		04
II	III	III	Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity	04	70	30	03	
			Anatomy and Embryology of Angiosperms, Plant Ecology and Biodiversity - Lab	03	Max.Marks-50 internal assessment at semester end		02	
	IV	IV	Plant Physiology and Metabolism	04	70	30	03	
			Plant Physiology and Metabolism - Lab	03	Max.Marks-50 External assessment at semester end		02	
			Cell Biology, Genetics and Plant Breeding	04	70	30	03	
			Cell Biology, Genetics and Plant Breeding - Lab	03	Max.Marks-50 internal assessment at semester end		02	
	<b>Short Term Internship</b>				—	100		04
				Cell Biology, Genetics and Plant Breeding	04	75	25	03

Year	Semester	Paper	Title	Hours/ Week	Max. Marks(SEE)	Marks in CIA	Credits
III	V	V	Cell Biology, Genetics and Plant Breeding - Lab	03	Max.Marks-50 internal assessment at semester end		02
		VI	Plant Ecology and Phytogeography	04	75	25	03
			Plant Ecology and Phytogeography - Lab	03	Max.Marks-50 internal		02
	VII & VIII any one paper from A,B and C any one cluster from I, II, and III	VII (A) - Elective	Organic forming and sustainable agriculture	04	75	25	03
			Organic forming and sustainable agriculture - Lab	03	Max.Marks-50 External assessment at semester end		02
		VII (B) Elective	Nursery, Gardening and Floriculture	04	75	25	03
			Nursery, Gardening and Floriculture - Lab	03	Max.Marks-50 External		02
		VII (C) Elective	Plant Tissue culture and its Biotechnological applications	04	75	25	03
			Plant Tissue culture and its Biotechnological applications - Lab	03	Max.Marks-50 External assessment at semester end		02
		VIII (A1) Cluster	Plant Diversity and Human welfare	04	75	25	03
			Plant Diversity and Human welfare - Lab	03	Max.Marks-50 External		02
		VIII (A2) Cluster	Ethanobotany and medicinal botany	04	75	25	03
			Ethanobotany and medicinal botany - Lab	03	Max.Marks-50 External		02
		VIII (A3) Cluster	Pharmacognosy and phytochemistry	04	75	25	03
			Pharmacognosy and phytochemistry Lab	03	Max.Marks-50 External		02
		VIII (B1) Cluster	Biological Instrumentation and methadology	04	75	25	03
			Biological Instrumentation and methadology - Lab	03	Max.Marks-50 External assessment at semester end		02
		VIII (B2) Cluster	Mushroom cultivation and Technology	04	75	25	03
			Mushroom cultivation and Technology - lab	03	Max.Marks-50 External		02
		VIII (B3) Cluster	Internship/project work preferably either in an institution or Industry	-	100		03

D. Durga Bhawani  
Head of I.L.L partmer  
Department of Botany  
Ideal College of Arts & Science  
KAKINADA

# IDEAL COLLEGE OF ARTS & SCIENCES, KAKINADA

(A.P. Govt. Aided, Autonomous, NAAC Accredited B)

Dr. PVN RAJU VIDYAPRANGANAM

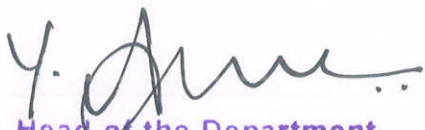
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## ZOOLOGY COURSE STRUCTURE UNDER CBCS 2021-22

YEAR	SEMESTER	PAPER	TITLE	MARKS	CREDITS		
I	I	I	Animal Diversity – Biology of Non Chordates	100	03		
			Practical - I	50	02		
	II	II	Animal Diversity – Biology of chordates	100	03		
			Practical - II	50	02		
			<b>Community Service Project</b>	100	04		
II	III	III	Cell biology, Genetics, Molecular Biology & Evolution	100	03		
			Practical - III	50	02		
	IV	IV	Animal Physiology, Cellular metabolism and Embryology	100	03		
			Practical - IV	50	02		
	V	V	Immunology & Animal Biotechnology	100	03		
			Practical - V	50	02		
			<b>Short Term Internship</b>	100	04		
III	V	V	Animal Biotechnology	100	03		
			Practical - V	50	02		
		VI	VI	Animal Husbandry	100	03	
				Practical - VI	50	02	
	*Any one Paper from A, B and C	VII (A)*	VII (A)*	Immunology	100	03	
				Practical - VII (A)	50	02	
		VII (B)*	VII (B)*	Cellular Metabolism and Molecular Biology	100	03	
				Practical - VII (B)	50	02	
	** Any one cluster from I, II and III	VII (C)*	VII (C)*	Bioinformatics	100	03	
				Practical - VII (C)	50	02	
		VI	Cluster VIII-A**	Cluster Electives –VIII-A : <b>Medical Diagnostics</b>	1. Clinical Biochemistry	100	03
					2. Haematology	100	03
	3. Clinical Microbiology				100	03	
	Practical – VIII: 1				50	02	
			Practical – VIII: 2	50	02		
			<b>Project Work</b>	50	02		
	Cluster VIII-B**	Cluster Electives –VIII-B : <b>Aquaculture</b>					
		1. Principles of Aquaculture	100	03			

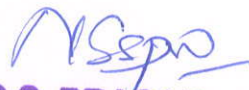


		VIII-B**	1. Principles of Aquaculture	100	03	
			2. Aquaculture Management	100	03	
			3. Postharvest Technology	100	03	
			Practical – VIII: 1	50	02	
			Practical – VIII: 2	50	02	
			Project Work	50	02	
		Cluster VIII-C**	<b>Cluster Electives – VIII-C : Sericulture</b>	1. Gen. Sericulture, Mulberry cultivation and Management	100	03
				2. Biology of Mulberry Silkworm and Silkworm rearing Technology	100	03
				3. Silk Technology, Silk Marketing and Extension	100	03
				Practical – VIII: 1	50	02
Practical – VIII: 2	50			02		
		Project Work	50	02		

  
 Head of the Department  
 Department of Zoology  
 Ideal College of Arts & Sciences  
 KAKINADA.

**IDEAL COLLEGE OF ARTS AND SCIENCES(A)  
HISTORY COURSE STRUCTURE UNDER CBCS  
2021-2022**

Year	Semester	Title	Max. Marks	Credits
I	I	ANCIENT INDIAN HISTORY & CULTURE	100	04
	II	Medieval Indian History & Culture	100	04
		Community Service Project	100	04
II	III	Modern Indian History	100	04
	IV	History and Culture of Andhra		
		History of Modern World (15th Cen - 1945)	100	04
		Short Term Internship	100	04
III	V	History of Modern World (1453 to 1821)	100	04
		History of Culture of Andhra Desha	100	04
	VI	History of Modern World	100	04
		Cultural Tourism	100	04
		Popular Movements in Andhra Desa	100	04
		Contemporary History of Andhra Pradesh	100	04

  
**N.S.S. PRASAD**  
 HOD-HISTORY  
 IDEAL COLLEGE OF ARTS AND SCIENCES (A)  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

(A.P.Govt., Aided, Autonomous & NAAC B)

Dr.P.V.N.RAJU VIDYAPRANGANAM

Samalkot Road – Kakinada

## DEPARTMENT OF ECONOMICS

### B.A ECONOMICS COURSE STRUCTURE 2021-2022

YEAR	Paper / Course	Semester	Title of the Paper	Credits	Marks
First Year	Course - 1	Semester - I	Micro Economics Analysis	4	100
	Course - 2	Semester – II	Macro Economics Analysis	4	100
			Community Service Project	4	100
Second Year	Course - 3	Semester – III	Development Economics	4	100
	Course - 4	Semester – IV	Economic Development in India and Andhra Pradesh	4	100
			Short Term Internship	4	100
	Course - 5	Semester – IV	Statistical Methods for Economics	4	100
Third Year	Paper – V	Semester – V	Economic Development and Indian Economy	4	100
	Paper – VI	Semester – V	Indian and Andhra Pradesh Economy	4	100
	Paper – VII A	Semester – VI	Agricultural Economics	4	100
	Cluster Elective - (A) Agri Business			4	100
	Paper – VIII A-1	Semester – VI	Agri Business Environment in Andhra Pradesh	4	100
	Paper – VIII A-2	Semester – VI	Agricultural output marketing	4	100
	Paper – VIII A-3	Semester – VI	Project Work	4	100

*G. Steeven Raju*

**Dr. G. STEEVEN RAJU**


HOD-ECONOMICS

**IDEAL COLLEGE OF ARTS AND SCIENCES  
KAKINADA**




**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**POLITICAL SCIENCE COURSE STRUCTURE UNDER CBCS**  
**2021-2022**

Year	Semester	Title	Max. Marks	Credits
I	I	Introduction to Political Science	100	04
	II	Basic Organs of the Government	100	04
		<b>Community Service Project</b>	<b>100</b>	<b>04</b>
II	III	Indian Government and Politics	100	04
	IV	Indian Political Process		
		Western Political Thought	100	04
		<b>Short Term Internship</b>	<b>100</b>	<b>04</b>
III	V	E - Governance	100	04
	VI	Local Administration	100	04
		International Relations	100	04
		Indian Foreign Policy	100	04
		Contemporary Global Issues	100	04

  
**Dr. K. SWAMIJI**  
**HOD-POLITICAL SCIENCE**  
**IDEAL COLLEGE OF ARTS AND SCIENCES (A)**  
**KAKINADA**

**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**COMMERCE COURSE STRUCTURE UNDER CBCS**  
**2021-2022**

Year	Semester	Title	Max. Marks	Credits
I	I	Fundamentals of Accounting	100	04
		Business Organization and Management	100	04
		Business Environment	100	04
	II	Financial Accounting	100	04
		Business Economics	100	04
		Banking Theory & Practice	100	04
		<b>Community Service Project</b>	<b>100</b>	<b>04</b>
II	III	Advanced Accounting	100	04
		Business Statistics	100	04
		Marketing	100	04
	IV	Corporate Accounting	100	04
		Cost and Management Accounting	100	04
		Income Tax	100	04
		Business Laws	100	04
		Auditing	100	04
		Goods and service tax	100	04
		<b>Short Term Internship</b>	<b>100</b>	<b>04</b>
	III	V	Business Leadership	50
Cost Accounting			100	04
Goods and service tax			100	04
Commercial Geography			100	04
Rural and farm credit			100	04
Central banking			100	04
<b>Project work</b>			<b>100</b>	<b>04</b>
VI		Tally	100	04
		Marketing	100	04
		Auditing	100	04
		Management accounting	100	04
		Marketing financial service	100	04
		Financial Service	100	04
		<b>Project work</b>	<b>100</b>	<b>04</b>

  
**H.O.D. of Commerce Department**  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)

DR.P.V.RAJU VIDYAPRANGANAM

KAKINADA-533002

DEPARTMENT OF AGRICULTURE  
Course structure under CBCS (2021-22)

B. Voc – Agriculture

Year	Semester	Title	Max. Marks	Credits
I	I	Introduction to soil science	100	4
		Introduction to agronomy	100	4
		Principles of plant breeding		
	II	Introduction to plant pathology	100	4
		Crop physiology	100	4
		Introduction to Entomology	100	4
		Community service project	100	4



Head of the Department  
AGRICULTURE  
Ideal College of Arts & Sciences (A)  
Kakinada



# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)

DR.P.V.RAJU VIDYAPRANGANAM

KAKINADA-533002

DEPARTMENT OF AGRICULTURE

Course structure under CBCS (2021-22)

B. Voc – Agriculture

Year	Semester	Title	Max. Marks	Credits
I	I	Seed science and technology	100	4
		Fundamentals of horticulture	100	4
		Fundamentals of agronomy	100	4
	II	Seed science and technology	100	4
		Fundamentals of soil science	100	4
		Entomology	100	4
		Community service project	100	4
II	III	Agronomy of field crops	100	4
		Manures, fertilizers and soil fertility management	100	4
		Agricultural economics and farm management	100	4
	IV	Pest of field crops and their management	100	4
		Water management	100	4
		Principle of organic farming	100	4
		Farm power and machinery	100	4
		Internship	100	4

  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)

DR.P.V.RAJU VIDYAPRANGANAM


KAKINADA-533002

DEPARTMENT OF AGRICULTURE

Course structure under CBCS (2021-22)

B. Voc – Sustainable Agriculture

Year	Semester	Title	Max. Marks	Credits
I	I	Fundamentals of soil science	100	4
		Fundamentals of agronomy	100	4
		Fundamentals of horticulture	100	4
		Fundamentals of entomology and insect ecology	100	4
	II	Manures, fertilizers and soil fertility management	100	4
		Plantation crops, spices and fruits	100	4
		Fundamentals of plant breeding and seed technology	100	4
		Fundamentals of agricultural engineering	100	4
II	III	Protected cultivation of horticultural crops	100	4
		Fundamentals of plant pathology	100	4
		Commercial vegetable production	100	4
	IV	Plant physiology	100	4
		Weed management and fodder crop production	100	4
		Farm power and machinery	100	4
		Livestock farming	100	4
III	V	Fundamentals of organic farming	100	4
		Landscape designing and gardening	100	4
		Project work	100	4
	VI	Pests of field crops and vegetable crops	100	4
		Major flower crop production in india	100	4
		Tropical and sub-tropical fruit production	100	4
		Post-harvest management of horticulture crops	100	4
		Project	100	4

  
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DR.P.V.RAJU VIDYAPRANGANAM

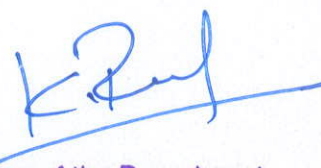
KAKINADA-533002

DEPARTMENT OF AGRICULTURE

Course structure under CBCS (2021-22)

B. Voc – Sustainable Agriculture

Year	Semester	Title	Max. Marks	Credits
I	I	Introduction to soil science	100	4
		Introduction to agronomy	100	4
		Principles of plant breeding		
	II	Introduction to plant pathology	100	4
		Crop physiology	100	4
		Introduction to Entomology	100	4
		Community service project	100	4



Head of the Department  
AGRICULTURE  
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DR.P.V.RAJU VIDYAPRANGANAM

KAKINADA-533002

DEPARTMENT OF AGRICULTURE

Course structure under CBCS (2021-22)

B. Voc – Sustainable Agriculture

Year	Semester	Title	Max. Marks	Credits
I	I	Seed science and technology	100	4
		Fundamentals of horticulture	100	4
		Fundamentals of agronomy	100	4
	II	Seed science and technology	100	4
		Fundamentals of soil science	100	4
		Entomology	100	4
		Community service project	100	4
II	III	Agronomy of field crops	100	4
		Manures, fertilizers and soil fertility management	100	4
		Agricultural economics and farm management	100	4
	IV	Pest of field crops and their management	100	4
		Water management	100	4
		Principle of organic farming	100	4
		Farm power and machinery	100	4
		Internship	100	4



Head of the Department  
AGRICULTURE  
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**IDEAL COLLEGE OF ARTS AND SCIENCES**  
**(Autonomous & NAAC-B)**  
**DR.P.V.N.RAJU VIDYAPRANGANAM,KAKINADA**  
**Department of Fisheries**  
**B.Voc. Industrial Aquaculture and Fisheries**  
**Course Structure under CBCS (2021-2022)**

Year	Semester	Title	Max. Marks	Credits
I	I	Biology of fin Fish & Shell fishes	100	04
		Principles of Aquaculture	100	04
	II	Freshwater, Brackishwater Aquaculture and Mari culture	100	04
		Crafts and Gears in Fisheries	100	04
		<b>Community Service Project</b>	100	04
II	III	Hatchery Technology in Finfish and Shellfish	100	04
		Inland and marine Fisheries	100	04
	IV	Fish Nutrition and Feed Technology	100	04
		Fish and Shellfish Pathology	100	04
III	V	Fish Processing Technology and Quality Control	100	04
		Aquatic Pollution	100	04
		Fish Policy, Laws and Disaster Management	100	04
		<b>Project-I</b>	100	04
	VI	Fisheries Economics and Marketing	100	04
		Aquaculture Engineering	100	04
		Fisheries Co-Operative and Marketing	100	04
		<b>Project-II</b>	100	04

  
 Head of the Department  
 Aquaculture & Fisheries  
 Ideal College of Arts & Sciences (A)  
 Kakinada

**B.Voc. Commercial Aquaculture**  
**Course Structure under CBCS (2021-2022)**

Year	Semester	Title	Max. Marks	Credits
I	I	Biology of fin Fish & Shell fishes	100	04
		Principles of Aquaculture	100	04
	II	Freshwater, Brackishwater Aquaculture and Mari culture	100	04
		Crafts and Gears in Fisheries	100	04
		<b>Community Service Project</b>	<b>100</b>	<b>04</b>
II	III	Hatchery Technology in Finfish and Shellfish	100	04
		Inland and marine Fisheries	100	04
	IV	Fish Nutrition and Feed Technology	100	04
		Fish and Shellfish Pathology	100	04

  
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 Aquaculture & Fisheries  
 Ideal College of Arts & Sciences (A)  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

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DR.P.V.N RAJU VIDYAPRANGANAM


KAKINADA-533002

Department of Food Science & Technology

Course structure under CBCS (2021-22)

B.sc- Food technology

Year	Semester	Title	Max.Marks	Credits
I	I	Food Production Trends	100	04
		Chemistry	100	04
		Food Science & Nutrition I	100	04
	II	Food Science & Nutrition II	100	04
		Chemistry	100	04
		Basic Principles of Food Preservation	100	04
		<b>Community service project</b>	<b>100</b>	<b>04</b>
II	III	Processing of Milk & Milk Products	100	05
		Processing of cereals, pulses and oil seeds	100	04
		Food Science & Nutrition III	100	04
	IV	Food business management	100	04
		Food safety and microbial standards	100	04
		New product development and sensory science	100	04
		Food engineering	100	04
		Processing of fruits and vegetables	100	04
		Food additives	100	04
		<b>SHORT TERM INTERNSHIP</b>	<b>100</b>	<b>04</b>

  
Head of the Department  
Food Science & Technology  
Ideal College of Arts & Sciences (A)  
Kakinada

# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)  
DR.P.V.N RAJU VIDYAPRANGANAM  
KAKINADA-533002

Department of Food science And Nutrition  
Course structure under CBCS (2021-2022)  
B.Voc-Food Processing and Quality Management

Year	Semester	Title	Max.Marks	Credits
I	I	Basic Food microbiology	100	04
		Food Chemistry	100	04
		Principles of Food Preservation	100	04
		Chemistry	100	02
		Food Science And Nutrition I	100	02
	II	Chemistry	100	03
		Basics of Food Engineering	100	04
		Food Science And Nutrition II	100	03
		Food Quality Management	100	04
		Processing Of Milk and Milk Products	100	04
		<b>Community Service Project</b>	100	04
II	III	Chemistry	100	03
		Food Additives	100	03
		Processing of Cereals, pulses and oil seeds	100	04
		Functional Foods And Nutraceuticals	100	04
		New Product Development And Sensory Science	100	04
	IV	Chemistry	100	03
		Food Safety And Microbial Standards	100	03
		Processing technology of Fruits And Vegetables	100	04
		Food Quality and Management	100	04
		Food Business Management	100	04
		<b>SHORT TERM INTERNSHIP</b>	<b>100</b>	<b>04</b>

*P. Ramesh*

Head of the Department  
Food Science & Technology  
Ideal College of Arts & Sciences (A)  
Kakinada

# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)  
DR.P.V.N RAJU VIDYAPRANGANAM  
KAKINADA-533002

Department of Computer Science  
Course structure under CBCS (2021-22)  
B.Voc-Software Development

Year	Semester	Title	Max.Marks	Credits
I	I	Applied Maths-I	100	04
		Introduction to IT Tools	100	04
		Photoshop and Flash	100	04
		IT Foundations and Programming Concepts	50	02
	II	Applied Maths-II	100	04
		C Programming	100	04
		Networking and Internet Applicatoins	100	04
		Microsoft Advanced Excel	50	02
		<b>Community Service Project</b>	<b>100</b>	<b>04</b>
II	III	Numerical Analysis	100	04
		Data Structures using C	100	04
		Introduction to Python Programming	100	04
		Object Oriented Programming Through JAVA	50	02
	IV	Advanced Numerical Analysis	100	04
		Discrete Mathematical Structures	100	04
		Object Oriented Software Engineering	100	04
		Operating systems	100	04
		Web Programming	100	04
		Basics of Cloud Computing	100	04
		<b>SHORT TERM INTERNSHIP</b>	<b>100</b>	<b>04</b>

*S. V. Babu*  
Head of the Department  
Software Development (Computer Science)  
Ideal College of Arts & Sciences (A)  
Kakinada




# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)  
DR.P.V.N RAJU VIDYAPRANGANAM  
KAKINADA-533002

Department of Computer Science  
Course structure under CBCS (2021-22)  
B.Sc Artificial Intelligence & Robotics

Year	Semester	Title	Max.Marks	Credits
I	I	Mathematics-1	100	04
		Physics-1	100	04
		Web Technology	100	04
	II	Mathematics-2	100	04
		Physics-2	100	04
		Artificial Intelligence	100	04
		<b>Community Service Project</b>	100	04
II	III	Mathematics-3	100	04
		Physics-3	100	04
		Expert System	100	04
	IV	Mathematics-4	100	04
		Mathematics-5	100	04
		Physics-4	100	04
		Physics-5	100	04
		Fundamentals of IOT and Robotics	100	04
		Machine Learning	100	04
	<b>SHORT TERM INTERNSHIP</b>	100	04	

  
Head of the Department  
A.I. & Robotics (Computer Science)  
Ideal College of Arts & Sciences (A)  
Kakinada

# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)  
DR.P.V.N RAJU VIDYAPRANGANAM  
KAKINADA-533002

Department of Management Studies  
Course structure under CBCS (2021-22)  
BBA (Digital Marketing)

Year	Semester	Title	Max. Marks	Credits
I	I	Principals of Management	100	04
		Managerial Economics	100	04
		Fundamentals of Digital Marketing and Digital Markets	100	04
		Human Values & Professional Ethics	50	02
		Electrical Appliances	50	02
	II	Accounting for Managers	100	04
		Digital and Social Media Marketing	100	04
		E- commerce	100	04
		ICT	50	02
		Solar Energy	50	02
		Advertising	50	02
		<b>Community Service Project</b>	<b>100</b>	<b>04</b>
		II	III	Organizational Behavior
Search Engine Optimization	100			04
Financial Management	100			04
Analytical Skills	50			02
Environmental Education	50			02
Online Business	50			02
IV	Training and Development			100
	Business Law		100	04
	Micro, Small, Medium Enterprises Management		100	04
	International Business		100	04
	Search Engine Marketing & Affiliate Marketing		100	04
	Cyber Law		100	04
<b>INTERNSHIP</b>	<b>100</b>		<b>04</b>	

  
Head of the Department  
BBA (Digital Marketing)  
Ideal College of Arts & Sciences (A)  
Kakinada

# IDEAL COLLEGE OF ARTS & SCIENCES: KAKINADA

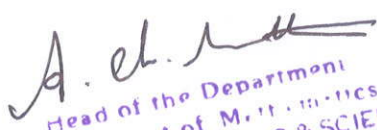
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Dr. P.V.N.RAJU VIDYAPRANGANAM

## B.A./B.Sc. Mathematics COURSE STRUCTURE 2020-21

Semester	Paper	Subject	Hr	Credits	IA	ES	Total
<b>FIRST YEAR</b>							
SEMESTER I	Paper-I	Differential Equations & Differential Equations Problem Solving Sessions	6	5	25	75	100
SEMESTER II	Paper-II	Solid Geometry & Solid Geometry Problem Solving Sessions	6	5	25	75	100
<b>SECOND YEAR</b>							
SEMESTER III	Paper-III	Abstract Algebra & Abstract Algebra Problem Solving Sessions	6	5	25	75	100
SEMESTER IV	Paper-IV	Real Analysis & Real Analysis Problem Solving Sessions	6	5	25	75	100
<b>THIRD YEAR</b>							
SEMESTER V	Paper-V	Ring Theory & Vector Calculus & Ring Theory & Vector Calculus Problem Solving	6	5	25	75	100
SEMESTER V	Paper-VI	Linear Algebra & Linear Algebra Problem Solving Sessions	6	5	25	75	100
SEMESTER VI	Paper-VII	Elective (any one) * A. Laplace-Transformations B. Numerical Analysis C. Number Theory D. Graph Theory & Elective Problem-Solving Sessions	5	5	25	75	100
		Cluster Electives: *** VIII A. 1. Integral Transformations & Problem-Solving Sessions	5	5	25	75	100
	Paper-VIII	2. Special Functions & Problem-Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100
		VIII B. 1. Advanced Numerical Analysis & Problem Solving Sessions	5	5	25	75	100
		2. special Functions & Problem-Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100
		VIII C. 1. Principles of Mechanics & Problem-Solving Sessions	5	5	25	75	100
		2. Fluid Mechanics & Problem-Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100
		VIII D. 1. Applied Graph Theory & Problem-Solving Sessions	5	5	25	75	100
		2. Special Function & Problem-Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100


\*Candidate has to choose only one paper from VII(A) or VII(B) or VII(C) or VII(D)  
\* Candidates are advised to choose Cluster (A) if they have chosen VII (A) and Choose Cluster (B) if they have chosen VII(B) etc. However, a candidate may choose any cluster irrespective of what they have Chosen in paper VII.

  
 Head of the Department  
 Department of M. II, III, IV  
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**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**PHYSICS COURSE STRUCTURE UNDER CBCS**  
**2020-2021**

Year	Semester	Paper	Title	Marks	Credits		
I	I	I	Mechanics, waves and oscillations	100	04		
			Practical	50	01		
		Skill Development	Electrical Appliances	50	02		
	II	II	II	Waves optics	100	04	
				Practical	50	01	
		Skill Decelopment	Solar Energy	50	02		
			<b>Community Service Project</b>	<b>100</b>	<b>04</b>		
II	III	III	Optics	100	03		
			Practical	50	02		
	IV	IV	Thermodynamics & Radiation Physics	100	03		
			Practical	50	02		
III	V	V	Electricity magnetions & Electronics.	100	03		
			Practical	50	02		
		VI	VI	Modern Physics	100	03	
				Practical	50	02	
		VI any one paper from A,B and C any one cluster from I, II, and III	VII A	VII A	Anylos and digital electronics	100	03
					Practical	50	02
	VII A1		VII A1	Introduction to micro procesolsand micro controller	100	03	
				Practical	50	02	
	VII A2		VII A2	Computational Methods and programming	100	03	
				Practical	50	02	
	VII A3		VII A3	Electronic Instrumentation	100	03	
				Practical		02	
	VII B		VII B	Material Science	100	03	
				Practical	50	02	
	VII B1		VII B1	Fundamentals of Nano Science	100	03	
				Practical	50	02	
	VII B2	VII B2	Synthesis and charactriztion of nano Materials	100	03		
			Practical	50	02		
	VII B3	VII B3	Applications of Nano Materials and Devices	100	03		
			Practical	50	02		
	VII C	VII C	Renewable Energy	100	03		
			Practical	50	02		
	VII C1	VII C1	Solar thermal and photo voltaic aspects	100	03		
			Practical	50	02		
VII C2	VII C2	Wind hydro energies	100	03			
		Practical	50	02			
VII C3	VII C3	Energy Storage divices	100	03			
		Practical	50	02			


  
**Head of the Department of Physics**  
**IDEAL COLLEGE OF ARTS AND SCIENCE**  
**KAKINADA - 533 004**

**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**CHEMISTRY COURSE STRUCTURE UNDER CBCS**  
**2020-2021**

Year	Semester	Paper	Title	Marks	Credits
I	I	I	Inorganic and Physical Chemistry	100	03
			Practical - I	50	02
	II	II	Organic and General chemistry	100	03
			Practical - II	50	02
			<b>Community Service Project</b>	<b>100</b>	<b>04</b>
II	III	III	Inorganic and Organic Chemistry	100	03
			Practical - III	50	02
	IV	IV	Physical Chemistry and Spectroscopy	100	03
			Practical - IV	50	02
	III	V	V	Inorganic, Organic and Physical chemistry	100
Practical-V				50	02
VI			Inorganic, Organic and Physical chemistry	100	03
			Practical -VI	50	02
VI Any one Elective paper from VII A, B, C		VII A	Elective: Analytical Method in Chemistry	100	03
			Practical- VII A	50	02
		VII B	Elective: Environmental Chemistry	100	03
			Practical: VII B	50	02
		VII C	Elective : Green Chemistry	100	03
			Practical -VII C	50	02
VIII A			<b>Cluster Elective I:</b>		
			VIII-A-1 : Polymer Chemistry	100	03
	VIII-A-2: Insrtumental Methods of Analysis		100	03	
	VIII-A-3: Analysis of Drugs, Foods, Diary Products& Biochemical Analysis		100	03	
	Practical VIII-A-1		50	02	
	Practical VIII-A-2		50	02	
	<b>Project Work</b>		<b>50</b>	<b>02</b>	
	<b>Cluster Elective II:</b>				
	VIII - B-1 Fuel Chemistry and Batteries		100	03	
	VIII - B-2 Inorganic meterials of Industrial Importance		100	03	
	Any one Cluster from	VIII B			



Year	Semester	Paper	Title	Marks	Credits	
	VIII A, B, C	VIII B	VIII - B-3 Analysis of Industrial Products	100	03	
			Practical VIII - B-1	50	02	
			Practical VIII - B-2	50	02	
			Project Work	50	02	
		VIII C	<b>Cluster Elective II:</b>			
			VIII - C-1 Organic Spectroscopic Techniques	100	03	
			VIII - C-2 Advanced Organic Reactions	100	03	
			VIII - C-3 Pharmaceutical and Medicinal Chemistry	100	03	
			Practical VIII - C-1	50	02	
			Practical VIII - C-2	50	02	
		Project Work	50	02		

  
 Head of the Dept. of Chemistry  
 Ideal College of Arts & Sciences  
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# IDEAL COLLEGE OF ARTS & SCIENCES : KAKINADA

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## Department of Computer Science

### Structure of Computer Science Syllabus 2020-2021

Semester	Paper Code	Subject	Hrs./ Week	Credits	IA	ES	Total
<b>I B.Sc. Computer Science Syllabus under CBCS w.e.f. 2020-2021 Batch</b>							
I	C1	Problem Solving in C	4	3	30	70	100
	C1-P	Problem Solving in C Lab	2	2		50	50
II	C2	Data Structures using C	4	3	30	70	100
	C2-P	Data Structures using C Lab	2	2		50	50
		Community Service Project		4			100
<b>II B.Sc. Computer Science Syllabus under CBCS w.e.f. 2015-2016 Batch</b>							
III	3	Object Oriented Programming Using Java	4	3	25	75	100
	3-P	Object Oriented Programming Using Java Lab	2	2		50	50
IV	4	Data Structures	4	3	25	75	100
	4-P	Data Structures using Java Lab	2	2		50	50
<b>III B.Sc. Computer Science Syllabus under CBCS w.e.f. 2015-2016 Batch</b>							
V	5	Database Management System	4	3	25	75	100
	5-P	Database Management System Lab	2	2		50	50
	6	Software Engineering	4	3	25	75	100
	6-P	Software Engineering Lab	2	2		50	50
VI	7	<u>Elective-I</u> Computer Networks	3	3	25	75	100
	7-P	Computer Networks Lab	2	2		50	50
	8A	<u>Elective-II (Cluster-A)</u> 1. Foundations of Data Science	3	3	25	75	100
	8A-P	Foundations of Data Science Lab (through R)	2	2		50	50
	8B	2. Big Data Technology	3	3	25	75	100
	8B-p	Big Data Technology Lab (Hadoop)	2	2		50	50
	8C	Project Work	5	5	25	75	100

*M. A. Sagar*

Head of Department of Computer Science  
IDEAL COLLEGE OF ARTS & SCIENCES  
KAKINADA

**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**BOTANY COURSE STRUCTURE UNDER CBCS**  
**2020-2021**

Year	Semester	Paper	Title	Hours/ Week	Max. Marks(S EE)	Marks in CIA	Credits
I	I	I	Fundamentals of Microbes and Non-Vascular Plants	04	70	30	03
			Fundamentals of Microbes and Non-Vascular Plants - Lab	03	Max.Marks-50 internal assessment at semester end		02
	II	II	Basics of Vascular Plants and Phytogeography	04	70	30	03
			Basics of Vascular Plants and Phytogeography - Lab	03	Max.Marks-50 External assessment at semester end		02
	II		<b>Community Service Project</b>		100		04
II	III	III	Plant Taxonomy and Embryology	04	75	25	03
			Plant Taxonomy and Embryology - Lab	03	Max.Marks-50 internal assessment at semester end		02
	IV	IV	Plant Physiology and Metabolism	04	75	25	03
			Plant Physiology and Metabolism - Lab	03	Max.Marks-50 External assessment at semester end		02
V	V	V	Cell Biology, Genetics and Plant Breeding	04	75	25	03
			Cell Biology, Genetics and Plant Breeding - Lab	03	Max.Marks-50 internal assessment at semester end		02
				Plant Ecology and Phytogeography	04	75	25

Year	Semester	Paper	Title	Hours/ Week	Max. Marks(S EE)	Marks in CIA	Credits	
III		VI	Plant Ecology and Phytogeography - Lab	03	Max.Marks-50 internal assessment at semester end		02	
	VII & VIII any one paper from A,B and C any one cluster from I, II, and III	VII (A) - Elective	Organic farming and sustainable agriculture	04	75	25	03	
			Organic farming and sustainable agriculture - Lab	03	Max.Marks-50 External assessment at semester end		02	
		VII (B) Elective	Nursery, Gardening and Floriculture	04	75	25	03	
			Nursery, Gardening and Floriculture - Lab	03	Max.Marks-50 External assessment at semester end		02	
		VII (C) Elective	Plant Tissue culture and its Biotechnological applications	04	75	25	03	
			Plant Tissue culture and its Biotechnological applications - Lab	03	Max.Marks-50 External assessment at semester end		02	
		VIII (A1) Cluster	Plant Diversity and Human welfare	04	75	25	03	
			Plant Diversity and Human welfare - Lab	03	Max.Marks-50 External assessment at semester end		02	
		VIII (A2) Cluster	Ethanobotany and medicinal botany	04	75	25	03	
			Ethanobotany and medicinal botany - Lab	03	Max.Marks-50 External assessment at semester end		02	
				Pharmacognosy and phytochemistry	04	75	25	03



Year	Semester	Paper	Title	Hours/ Week	Max. Marks(S EE)	Marks in CIA	Credits
		VIII (A3) Cluster	Pharmacognosy and phytochemistry Lab	03	Max.Marks-50 External assessment at semester end		02
		VIII (B1) Cluster	Biological Instrumentation and methadology	04	75	25	03
			Biological Instrumentation and methadology - Lab	03	Max.Marks-50 External assessment at semester end		02
		VIII (B2) Cluster	Mushroom cultivation and Technology	04	75	25	03
			Mushroom cultivation and Technology - lab	03	Max.Marks-50 External assessment at semester end		02
		VIII (B3) Cluster	Internship/project work preferably either in an institution or Industry	-	100		03

M. Sulakshana  
 Head of the Department  
 Department of Botany  
 Medical College of Arts & Science  
 KAKINATA

# IDEAL COLLEGE OF ARTS & SCIENCES, KAKINADA

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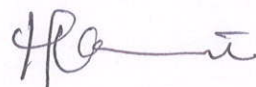
Dr. PVN RAJU VIDYAPRANGANAM

KAKINADA.

## ZOOLOGY COURSE STRUCTURE UNDER CBCS 2020-21

YEAR	SEMESTER	PAPER	TITLE	MARKS	CREDITS	
I	I	I	Animal Diversity, Biology of Non chordates	100	03	
			Practical - I	50	02	
	II	II	Animal Diversity - Biology of Chordates	100	03	
			Practical - II	50	02	
			Community Project	100	04	
	II	III	III	Cytology, Genetics and evolution	100	03
Practical - III				50	02	
IV		IV	Embryology, Physiology and ecology	100	03	
			Practical - IV	50	02	
		V	Animal Biotechnology	100	03	
			Practical - V	50	02	
III	V	V	Animal Biotechnology	100	03	
			Practical - V	50	02	
		VI	Animal Husbandry	100	03	
			Practical - VI	50	02	
	*Any one Paper from A, B and C	VII (A)*	Immunology	100	03	
			Practical - VII (A)	50	02	
	** Any one cluster from I, II and III	VII (B)*	Cellular Metabolism and Molecular Biology	100	03	
			Practical - VII (B)	50	02	
		VII (C)*	Bioinformatics	100	03	
			Practical - VII (C)	50	02	
	VI	Cluster VIII-A**	<b>Cluster Electives –VIII-A :</b>			
			<b>Medical Diagnostics</b>			
			1. Clinical Biochemistry	100	03	
			2. Haematology	100	03	
3. Clinical Microbiology			100	03		
Practical – VIII: 1			50	02		
Practical – VIII: 2			50	02		
Project Work			50	02		
Cluster VIII-B**	<b>Cluster Electives –VIII-B :</b>					
	<b>Aquaculture</b>					
	1. Principles of Aquaculture	100	03			
	2. Aquaculture Management	100	03			
	3. Postharvest Technology	100	03			
Practical – VIII: 1	50	02				

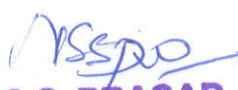
		Practical – VIII: 1	50	02
		Practical – VIII: 2	50	02
		Project Work	50	02
	Cluster VIII-C**	<b>Cluster Electives – VIII-C : Sericulture</b>		
		1. Gen. Sericulture, Mulberry cultivation and Management	100	03
		2. Biology of Mulberry Silkworm and Silkworm rearing Technology	100	03
		3. Silk Technology, Silk Marketing and Extension	100	03
		Practical – VIII: 1	50	02
		Practical – VIII: 2	50	02
		Project Work	50	02

  
 Head of the Department  
 Department of Zoology  
 Ideal College of Arts & Sciences  
 KAKINADA.



**IDEAL COLLEGE OF ARTS AND SCIENCES(A)  
HISTORY COURSE STRUCTURE UNDER CBCS  
2020-2021**

Year	Semester	Title	Max. Marks	Credits
I	I	ANCIENT INDIAN HISTORY & CULTURE	100	04
	II	Medieval Indian History & Culture	100	04
		Community Service Project	100	04
II	III	Indian History (1526-1761)	100	04
	IV	Indian History and Culture	100	04
III	V	History of Modern World (1453 to 1821)	100	04
		History of Culture of Andhra Desha	100	04
	VI	History of Modern World	100	04
		Cultural Tourism	100	04
		Popular Movements in Andhra Desa	100	04
		Contemporary History of Andhra Pradesh	100	04

  
**N.S.S. PRASAD**  
 HOD-HISTORY  
 IDEAL COLLEGE OF ARTS AND SCIENCES (A),  
 KAKINADA

# IDEAL COLLEGE OF ARTS AND SCIENCES

(A.P.Govt., Aided, Autonomous & NAAC B)  
Dr.P.V.N.RAJU VIDYAPRANGANAM  
Samalkot Road – Kakinada

## DEPARTMENT OF ECONOMICS

### B.A ECONOMICS COURSE STRUCTURE 2020-2021

YEAR	Paper	Semester	Title of the Paper	Credits	Marks
First Year	Paper – I	Semester - I	Micro Economics Analysis	4	100
	Paper – II	Semester – II	Macro Economics Analysis	4	100
			Community Service Project	4	100
Second Year	Paper – III	Semester – III	Macro Economics – I	4	100
	Paper – IV	Semester – IV	Macro Economics – II	4	100
Third Year	Paper – V	Semester – V	Economic Development and Indian Economy	4	100
	Paper – VI	Semester – V	Indian and Andhra Pradesh Economy	4	100
	Paper – VII A	Semester – VI	Agricultural Economics	4	100
	Cluster Elective - (A) Agri Business			4	100
	Paper – VIII A-1	Semester – VI	Agri Business Environment in Andhra Pradesh	4	100
	Paper – VIII A-2	Semester – VI	Agricultural output marketing	4	100
	Paper – VIII A-3	Semester – VI	Project Work	4	100

*G. Steeven Raju*


**Dr. G. STEEVEN RAJU**

HOD-ECONOMICS

IDEAL COLLEGE OF ARTS AND SCIENCES  
KAKINADA

**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**POLITICAL SCIENCE COURSE STRUCTURE UNDER CBCS**  
**2020-2021**


Year	Semester	Title	Max. Marks	Credits
I	I	Introduction to Political Science	100	04
	II	Basic Organs of the Government	100	04
		Community Service Project	100	04
II	III	Indian Government and Politics	100	04
	IV	Indian Political Process	100	04
III	V	Indian Political Thought	100	04
	VI	Western Political Thought	100	04
		International Relations	100	04
		Indian Foreign Policy	100	04
		Contemporary Global Issues	100	04

  
**Dr. K. SWAMIJI**  
**HOD-POLITICAL SCIENCE**  
**IDEAL COLLEGE OF ARTS AND SCIENCES (A)**  
**KAKINADA**



**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**COMMERCE COURSE STRUCTURE UNDER CBCS**  
**2020-2021**

Year	Semester	Title	Max. Marks	Credits
I	I	Fundamentals of Accounting	100	04
		Business Organization and Management	100	04
		Business Environment	100	04
	II	Financial Accounting	100	04
		Business Economics	100	04
		Banking Theory & Practice	100	04
		Community Service Project	100	04
II	III	Corporate Accounting	100	04
		Banking and theory practices	100	04
		Business statistics	100	04
	IV	Accounting for service Organizations	100	04
		Income Tax	100	04
		Business Law	100	04
		Entrepreneurship	50	02
III	V	Business Leadership	50	02
		Cost Accounting	100	04
		Goods and service tax	100	04
		Commercial Geography	100	04
		Rural and farm credit	100	04
		Central banking	100	04
		Project work	100	04
	VI	Tally	100	04
		Marketing	100	04
		Auditing	100	04
		Management accounting	100	04
		Marketing financial service	100	04
		Financial Service	100	04
		Project work	100	04

  
**H.O.D. of Commerce Department**  
**Ideal College of Arts and Sciences**  
**Autonomous and NAACB**  
**KAKINADA**

# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)


DR.P.V.RAJU VIDYAPRANGANAM

KAKINADA-533002

DEPARTMENT OF AGRICULTURE  
Course structure under CBCS (2020-21)

B. Voc – Agriculture

Year	Semester	Title	Max. Marks	Credits
I	I	Seed science and technology	100	4
		Fundamentals of horticulture	100	4
		Fundamentals of agronomy	100	4
	II	Seed science and technology	100	4
		Fundamentals of soil science	100	4
		Entomology	100	4
		Community service project	100	4

  
Head of the Department  
AGRICULTURE  
Ideal College of Arts & Sciences (A)  
Kakinada



# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)

DR.P.V.RAJU VIDYAPRANGANAM

KAKINADA-533002

DEPARTMENT OF AGRICULTURE

Course structure under CBCS (2020-21)

B. Voc – Sustainable Agriculture

Year	Semester	Title	Max. Marks	Credits
I	I	Fundamentals of soil science	100	4
		Fundamentals of agronomy	100	4
		Fundamentals of horticulture	100	4
		Fundamentals of entomology and insect ecology	100	4
	II	Manures, fertilizers and soil fertility management	100	4
		Plantation crops, spices and fruits	100	4
		Fundamentals of plant breeding and seed technology	100	4
		Fundamentals of agricultural engineering	100	4
II	III	Protected cultivation of horticultural crops	100	4
		Fundamentals of plant pathology	100	4
		Commercial vegetable production	100	4
	IV	Plant physiology	100	4
		Weed management and fodder crop production	100	4
		Farm power and machinery	100	4
		Livestock farming	100	4

*B. Parthasarathy*  
Head of the Department  
AGRICULTURE  
Ideal College of Arts & Sciences (A)  
Kakinada



# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)

DR.P.V.RAJU VIDYAPRANGANAM

KAKINADA-533002

DEPARTMENT OF AGRICULTURE

Course structure under CBCS (2020-21)

B. Voc – Sustainable Agriculture

Year	Semester	Title	Max. Marks	Credits
I	I	Seed science and technology	100	4
		Fundamentals of horticulture	100	4
		Fundamentals of agronomy	100	4
	II	Seed science and technology	100	4
		Fundamentals of soil science	100	4
		Entomology	100	4
		Community service project	100	4



Head of the Department  
AGRICULTURE  
Ideal College of Arts & Sciences (A)  
Kakinada

**IDEAL COLLEGE OF ARTS AND SCIENCES**  
**(Autonomous & NAAC-B)**  
**DR.P.V.N.RAJU VIDYAPRANGANAM,KAKINADA**  
**Department of Fisheries**  
**B.Voc. Industrial Aquaculture and Fisheries**  
**Course Structure under CBCS (2020-2021)**

Year	Semester	Title	Max. Marks	Credits
I	I	Biology of fin Fish & Shell fishes	100	04
		Principles of Aquaculture	100	04
	II	Freshwater, Brackishwater Aquaculture and Mari culture	100	04
		Gears and Crafts in Aquaculture	100	04
		<b>Community Service Project</b>	<b>100</b>	<b>04</b>
II	III	Inland and Marine Fisheries	100	04
		Aquaculture Nutrition	100	04
		Fish Genetics And Aquaculture Bio-Technology	100	04
		Pathology in Aquaculture	100	04
	IV	Ornamental Fishes	100	04
		Fish Microbiology and By-products	100	04

**B.Voc. Commercial Aquaculture**  
**Course Structure under CBCS (2020-2021)**

Year	Semester	Title	Max. Marks	Credits
I	I	Biology of fin Fish & Shell fishes	100	04
		Principles of Aquaculture	100	04
	II	Freshwater, Brackishwater Aquaculture and Mari culture	100	04
		Gears and Crafts in Aquaculture	100	04
		<b>Community Service Project</b>	<b>100</b>	<b>04</b>

  
 Head of the Department  
 Aquaculture & Fisheries  
 Ideal College of Arts & Sciences (A)  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)

DR.P.V.N RAJU VIDYAPRANGANAM

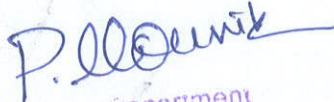
KAKINADA-533002

Department of Food Science & Technology

Course structure under CBCS (2020-21)

B.sc- Food technology

Year	Semester	Title	Max.Marks	Credits
I	I	Food production trends	100	05
		Fundamentals of Food Microbiology	100	04
		Fundamentals of Food Chemistry	100	04
	II	Food Quality Management	100	05
		Basic Principles of Food Preservation	100	04
		Food Science & Nutrition	100	04
		Community service project	100	04

  
head of the Department  
Food Science & Technology  
Ideal College of Arts & Sciences (A)  
Kakinada



# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)  
DR.P.V.N RAJU VIDYAPRANGANAM  
KAKINADA-533002

Department of Food science And Nutrition  
Course structure under CBCS (2020-2021)  
B.Voc-Food Processing and Quality Management

Year	Semester	Title	Max.Marks	Credits
I	I	Basic Food microbiology	100	04
		Food Chemistry	100	04
		Principles of Food Preservation	100	04
		Food Science And Nutrition I	100	02
		Chemistry	100	02
	II	Chemistry	100	03
		Basics of Food Engineering	100	04
		Food Science And Nutrition II	100	03
		Processing Of Milk and Milk Products	100	04
		Food Quality Management	100	04
		<b>Community Service Project</b>	100	04

*P. Louwita*

Head of the Department  
Food Science & Technology  
Ideal College of Arts & Sciences (A)  
Kakinada

# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)  
DR.P.V.N RAJU VIDYAPRANGANAM  
KAKINADA-533002

Department of Computer Science  
Course structure under CBCS (2020-21)  
B.Voc-Software Development

Year	Semester	Title	Max.Marks	Credits
I	I	Applied Maths-1	100	04
		Introduction to IT Tools	100	04
		Photoshop and Flash	100	04
		IT Foundations and Programming Concepts	50	02
	II	Applied Maths-II	100	04
		C Programming	100	04
		Networking and Internet Applicatoins	100	04
		Microsoft Advanced Excel	50	02
		Community Service Project	100	04


  
Head of the Department  
Software Development (Computer Science)  
Ideal College of Arts & Sciences (A)  
Kakinada

# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)  
DR.P.V.N RAJU VIDYAPRANGANAM  
KAKINADA-533002

Department of Computer Science  
Course structure under CBCS (2020-21)  
B.Sc Artificial Intelligence & Robotics

Year	Semester	Title	Max.Marks	Credits
I	I	Mathematics-1	100	04
		Physics-1	100	04
		Web technology	100	04
	II	Mathematics-2	100	04
		Physics-2	100	04
		Artificial Intelligence	100	04
		<b>Community Service Project</b>	100	04

  
Head of the Department  
A.I. & Robotics (Computer Science)  
Ideal College of Arts & Sciences (A)  
Kakinada



# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)  
DR.P.V.N RAJU VIDYAPRANGANAM  
KAKINADA-533002

Department of Management Studies  
Course structure under CBCS (2020-21)  
BBA (Digital Marketing)

Year	Semester	Title	Max. Marks	Credits
I	I	Principals of Management	100	04
		Managerial Economics	100	04
		Fundamentals of Digital Marketing and Digital Markets	100	04
		Human Values & Professional Ethics	50	02
		Electrical Appliances	50	02
	II	Accounting for Managers	100	04
		Digital and Social Media Marketing	100	04
		E- commerce	100	04
		ICT	50	02
		Solar Energy	50	02
		Advertising	50	02
		<b>Community Service Project</b>	<b>100</b>	<b>04</b>

  
Head of the Department  
BBA (Digital Marketing)  
Ideal College of Arts & Sciences (A)  
Kakinada

**IDEAL COLLEGE OF ARTS & SCIENCES: KAKINADA**

*(A.P. Govt. Aided, Autonomous & NAAC B)*

**B.A./B.Sc. Mathematics COURSE STRUCTURE 2019-20**

**(I, III, V Semesters)**

Semester	Paper	Subject	Hrs.	Credits	IA	ES	Total
FIRST YEAR							
SEMESTER I	Paper-I	Differential Equations & Differential Equations Problem Solving Sessions	6	5	25	75	100
SECOND YEAR							
SEMESTER III	Paper-III	Abstract Algebra & Abstract Algebra Problem Solving Sessions	6	5	25	75	100
THIRD YEAR							
SEMESTER V	Paper-V	Ring Theory & Vector Calculus & Ring Theory & Vector Calculus Problem Solving Sessions	6	5	25	75	100
SEMESTER V	Paper-VI	Linear Algebra & Linear Algebra Problem Solving Sessions	6	5	25	75	100

*M. Srinivas*  
Head of the Department  
Department of Mathematics  
IDEAL COLLEGE OF ARTS & SCIENCES  
KAKINADA.

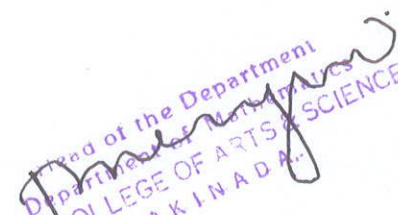
# IDEAL COLLEGE OF ARTS & SCIENCES: KAKINADA

(A.P. Govt. Aided, Autonomous & NAAC B)

## B.A./B.Sc. Mathematics COURSE STRUCTURE 2019-20

(II, IV, VI Semesters)

Semester	Paper	Subject	Hrs.	Credits	IA	ES	Total
FIRST YEAR							
SEMESTER II	Paper-II	Solid Geometry & Solid Geometry Problem Solving Sessions	6	5	25	75	100
SECOND YEAR							
SEMESTER IV	Paper-IV	Real Analysis & Real Analysis Problem Solving Sessions	6	5	25	75	100
THIRD YEAR							
SEMESTER VI	Paper-VII	Elective (any one)* A. Laplace-Transformations B. Numerical Analysis C. Number Theory D. Graph Theory & Elective Problem Solving Sessions	5	5	25	75	100
	Paper-VIII	Cluster Electives: *** VIII A. 1. Integral Transformations & Problem Solving Sessions	5	5	25	75	100
		2. Special Functions & Problem Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100
		VIII B. 1. Advanced Numerical Analysis & Problem Solving Sessions	5	5	25	75	100
		2. special Functions & Problem Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100

  
 Head of the Department  
 Department of Mathematics  
 IDEAL COLLEGE OF ARTS & SCIENCES  
 KAKINADA



	VIII C. 1.Principles of Mechanics & Problem Solving Sessions	5	5	25	75	100
	2.Fluid Mechanics & Problem Solving Sessions	5	5	25	75	100
	3.Project	5	5	50	50	100
	VIII D. 1. Applied Graph Theory & Problem Solving Sessions	5	5	25	75	100
	2.Special Function & Problem Solving Sessions	5	5	25	75	100
	3.Project	5	5	50	50	100

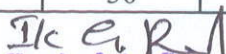
\*Candidate has to choose only one paper from VII(A) or VII(B) or VII(C) or VII(D)

\* Candidates are advised to choose Cluster (A) if they have chosen VII (A) and Choose Cluster (B) if they have chosen VII(B) etc. However, a candidate may choose any cluster irrespective of what they have Chosen in paper VII

*M. S. Srinivasan*  
 Head of the Department  
 Department of Mathematics  
 IDEAL COLLEGE OF ARTS & SCIENCE  
 KAKINADA.

**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**PHYSICS COURSE STRUCTURE UNDER CBCS**  
**2019-2020**

Year	Semester	Paper	Title	Marks	Credits	
I	I	I	Mechanics & Properties of Matter	100	03	
			Practical	50	02	
	II	II	Waves & Oscillations	100	03	
			Practical	50	02	
II	III	III	Optics	100	03	
			Practical	50	02	
	IV	IV	Thermodynamics & Radiation Physics	100	03	
			Practical	50	02	
III	V	V	Electricity magnetism & Electronics.	100	03	
			Practical	50	02	
		VI	VI	Modern Physics	100	03
				Practical	50	02
	VI any one paper from A,B and C any one cluster from I, II, and III	VII A	VII A	Anylos and digital electronics	100	03
				Practical	50	02
		VII A1	VII A1	Introduction to micro procesolsand micro controller	100	03
				Practical	50	02
		VII A2	VII A2	Computational Methods and programming	100	03
				Practical	50	02
		VII A3	VII A3	Electronic Instrumentation	100	03
		VII B	VII B	Material Science	100	03
				Practical	50	02
		VII B1	VII B1	Fundamentals of Nano Science	100	03
				Practical	50	02
		VII B2	VII B2	Synthesis and charactriztion of nano Materials	100	03
				Practical	50	02
		VII B3	VII B3	Applications of Nano Materials and Devices	100	03
				Practical	50	02
VII C	VII C	Renewable Energy	100	03		
		Practical	50	02		
VII C1	VII C1	Solar thermal and photo voltaic aspects	100	03		
		Practical	50	02		
VII C2	VII C2	Wind hydro energies	100	03		
		Practical	50	02		
VII C3	VII C3	Energy Storage divices	100	03		
		Practical	50	02		

  
 Head of the Department of Physics  
 IDEAL COLLEGE OF ARTS AND SCIENCE  
 K A K I N A D A - 532 004



**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**CHEMISTRY COURSE STRUCTURE UNDER CBCS**  
**2019-2020**

Year	Semester	Paper	Title	Marks	Credits	
I	I	I	Inorganic and Organic Chemistry	100	03	
			Practical - I	50	02	
	II	II	Physical and General Chemistry	100	03	
			Practical - II	50	02	
II	III	III	Inorganic and Organic Chemistry	100	03	
			Practical - III	50	02	
	IV	IV	Physical Chemistry and Spectroscopy	100	03	
			Practical - IV	50	02	
III	V	V	Inorganic, Organic and Physical chemistry	100	03	
			Practical-V	50	02	
		VI	Inorganic, Organic and Physical chemistry	100	03	
			Practical -VI	50	02	
	VI Any one Elective paper from VII A, B, C	VII A	Elective: Analytical Method in Chemistry	100	03	
			Practical- VII A	50	02	
		VII B	Elective: Environmental Chemistry	100	03	
			Practical: VII B	50	02	
		VII C	Elective : Green Chemistry	100	03	
			Practical -VII C	50	02	
	Any one Cluster from	VIII A	<b>Cluster Elective I:</b>			
			VIII-A-1 : Polymer Chemistry	100	03	
			VIII-A-2: Insrtumental Methods of Analysis	100	03	
			VIII-A-3: Analysis of Drugs, Foods, Diary Products& Biochemical Analysis	100	03	
Practical VIII-A-1			50	02		
Practical VIII-A-2			50	02		
Project Work			50	02		
<b>Cluster Elective II:</b>						
VIII B		VIII - B-1 Fuel Chemistry and Batteries	100	03		
		VIII - B-2 Inorganic meterials of Industrial Importance	100	03		



Year	Semester	Paper	Title	Marks	Credits
	VIII A, B, C		VIII - B-3 Analysis of Industrial Products	100	03
			Practical VIII - B-1	50	02
			Practical VIII - B-2	50	02
			Project Work	50	02
			<b>Cluster Elective II:</b>		
		VIII C	VIII - C-1 Organic Spectroscopic Techniques	100	03
			VIII - C-2 Advanced Organic Reactions	100	03
			VIII - C-3 Pharmaceutical and Medicinal Chemistry	100	03
			Practical VIII - C-1	50	02
			Practical VIII - C-2	50	02
			Project Work	50	02

*Praveedh*  
 Head of the Dept. of Chemistry  
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# IDEAL COLLEGE OF ARTS & SCIENCES: KAKINADA

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## Department of Computer Science

B.Sc. Computer Science Syllabus under CBCS w.e.f. 2015-2016 Batch

### Structure of Computer Science Syllabus for I, III and V Semesters 2019-2020

Semester	Paper	Subject	Hrs.	Credits	IA	ES	Total
<b>FIRST YEAR</b>							
SEMESTER I	I	Computer Fundamentals and Photoshop	4	3	25	75	100
		Photo Shop Lab	2	2	0	50	50
<b>SECOND YEAR</b>							
SEMESTER III	III	Object Oriented Programming Using Java	4	3	25	75	100
		Object Oriented Programming Using Java Lab	2	2	0	50	50
<b>THIRD YEAR</b>							
SEMESTER V	V	DBMS	3	3	25	75	100
		DBMS Lab	2	2	0	50	50
	VI	Software Engineering	3	3	25	75	100
		Software Engineering Lab	2	2	0	50	50

*M. A. Sanyal*  
Head of Department of Computer Science  
IDEAL COLLEGE OF ARTS & SCIENCES  
KAKINADA

# IDEAL COLLEGE OF ARTS & SCIENCES: KAKINADA

(A.P. Govt. Aided, Autonomous, NAAC Accredited B, Affiliated to ANUR)

## Department of Computer Science

### B.Sc. Computer Science Syllabus under CBCS w.e.f. 2015-2016 Batch

#### Structure of Computer Science Syllabus for II, IV and VI Semesters 2019-2020

Semester	Paper	Subject	Hrs.	Credits	IA	ES	Total
<b>FIRST YEAR</b>							
SEMESTER-II	II	Programming in C	4	3	25	75	100
		Programming in C Lab	2	2	0	50	50
<b>SECOND YEAR</b>							
SEMESTER-IV	IV	Data Structures	4	3	25	75	100
		Data Structures using Java Lab	2	2	0	50	50
<b>THIRD YEAR</b>							
SEMESTER-VI	VII	<b>Elective-I</b>					
		Computer Networks	3	3	25	75	100
		Computer Networks Lab	2	2	0	50	50
	VIII	<b>Elective-II (Cluster A)</b>					
		1. Foundations of Data Science	3	3	25	75	100
		Foundations of Data Science Lab (through R)	2	2	0	50	50
		2. Big Data Technology	3	3	25	75	100
		Big Data Technology Lab (Hadoop)	2	2	0	50	50
			Project Work	5	5	25	75

*M. A. Sayeed*  
Head of Department of Computer Science  
IDEAL COLLEGE OF ARTS & SCIENCES  
KAKINADA



**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**BOTANY COURSE STRUCTURE UNDER CBCS**  
**2019-2020**

Year	Semester	Paper	Title	Hours/ Week	Max. Marks(SEE)	Marks in CIA	Credits	
I	I	I	Microbial Diversity, Algae and Fungi	04	75	25	03	
			Microbial Diversity, Algae and Fungi - Lab	02	Max.Marks-50 internal		02	
	II	II	Diversity of Archaeogoniates & Plant Anatomy	04	75	25	03	
			Diversity of Archaeogoniates & Plant Anatomy - Lab	02	Max.Marks-50 External assessment at semester end		02	
II	III	III	Plant Taxonomy and Embryology	04	75	25	03	
			Plant Taxonomy and Embryology - Lab	02	Max.Marks-50 internal		02	
	IV	IV	Plant Physiology and Metabolism	04	75	25	03	
			Plant Physiology and Metabolism - Lab	02	Max.Marks-50 External		02	
III	V	V	Cell Biology, Genetics and Plant Breeding	04	75	25	03	
			Cell Biology, Genetics and Plant Breeding - Lab	02	Max.Marks-50 internal assessment at semester end		02	
		VI	Plant Ecology and Phytogeography	04	75	25	03	
			Plant Ecology and Phytogeography - Lab	02	Max.Marks-50 External		02	
		VII & VIII	VII (A) - Elective	Organic farming and sustainable agriculture	04	75	25	03
				Organic farming and sustainable agriculture - Lab	02	Max.Marks-50 External assessment at semester end		02
	VII (B) Elective		Nursery, Gardening and Floriculture	04	75	25	03	
			Nursery, Gardening and Floriculture - Lab	02	Max.Marks-50 External		02	
	VII (C) Elective		Plant Tissue culture and its Biotechnological applications	04	75	25	03	
			Plant Tissue culture and its Biotechnological applications - Lab	02	Max.Marks-50 External assessment at semester end		02	

Year	Semester	Paper	Title	Hours/ Week	Max. Marks(SEE)	Marks in CIA	Credits
	any one paper from A,B and C any one cluster from I, II, and III	VIII (A1) Cluster	Plant Diversity and Human welfare	04	75	25	03
			Plant Diversity and Human welfare - Lab	02	Max.Marks-50 External		02
		VIII (A2) Cluster	Ethanobotany and medicinal botany	04	75	25	03
			Ethanobotany and medicinal botany - Lab	02	Max.Marks-50 External		02
		VIII (A3) Cluster	Pharmacognosy and phytochemistry	04	75	25	03
			Pharmacognosy and phytochemistry Lab	02	Max.Marks-50 External		02
		VIII (B1) Cluster	Biological Instrumentation and methadology	04	75	25	03
			Biological Instrumentation and methadology - Lab	02	Max.Marks-50 External assessment at semester end		02
		VIII (B2) Cluster	Mushroom cultivation and Technology	04	75	25	03
			Mushroom cultivation and Technology - lab	02	Max.Marks-50 External		02
		VIII (B3) Cluster	Internship/project work preferably either in an institution or Industry	-	100		03

*K. Nirmala Devi*  
Head of i. L. partmer  
Department of Botany  
Ideal College of Arts & Science  
KAKINADA

# IDEAL COLLEGE OF ARTS & SCIENCES

(A.P. Govt. Aided, Autonomous, NAAC Accredited B++)

Dr. PVN RAJU VIDYAPRANGANAM

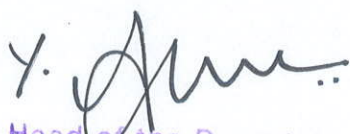
SAMALKOTA ROAD, KAKINADA

## ZOOLOGY COURSE STRUCTURE UNDER CBCS 2019-2020

YEAR	SEMESTER	PAPER	TITLE	MARKS	CREDITS	
I	I	I	ANIMAL DIVERSITY OF INVERTBRATES	100	03	
			Practical - I	50	02	
	II	II	ANIMAL DIVERSITY OF CHORDATES	100	03	
			Practical - II	50	02	
II	III	III	CYTOLOGY, GENETICS AND EVOLUTION	100	03	
			Practical - III	50	02	
	IV	IV	EMBRYOLOGY, PHYSIOLOGY AND ECOLOGY	100	03	
			Practical - IV	50	02	
III	V	V	ANIMAL BIOTECHNOLOGY	100	03	
			Practical - V	50	02	
		VI	ANIMAL HUSBANDRY	100	03	
			Practical - VI	50	02	
	* Any one Paper from A, B and C	VII (A)*	IMMUNOLOGY	100	03	
			Practical - VII (A)	50	02	
		VII (B)*	CELLULAR METABOLISM AND MOLECULAR BIOLOGY	100	03	
			Practical - VII (B)	50	02	
	** Any one cluster from I, II and III	VII (C)*	BIOINFORMATICS	100	03	
			Practical - VII (C)	50	02	
		VI	Cluster Electives –VIII-A**	Cluster Electives –VIII-A : <b>Medical Diagnostics</b>		
				1. CLINICAL BIOCHEMISTRY	100	03
	2. HAEMATOLOGY			100	03	
	3. CLINICAL MICROBIOLOGY			100	03	
Practical – VIII: 1	50			02		
Practical – VIII: 2	50			02		
Project Work	50	02				
VI	Cluster Electives –VIII-B :	<b>Aquaculture</b>				
		1 PRINCIPLES OF	100	03		

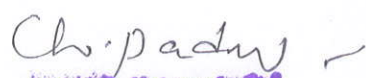



			AQUACULTURE		
		Cluster VIII-B**	2. AQUACULTURE MANAGEMENT	100	03
			3. POST HARVEST TECHNOLOGY	100	03
			Practical – VIII: 1	50	02
			Practical – VIII: 2	50	02
			Project Work	50	02
		Cluster VIII-C**	Cluster Electives – VIII-C : Sericulture		
			1. GENERAL SERICULTURE, MULBERRY CULTIVATION AND MANAGEMENT	100	03
			2. BIOLOGY OF MULBERRY SILK WORM AND SILKWORM REARING TECHNOLOGY	100	03
			3. SILK TECHNOLOGY, SILK MARKETING AND EXTENSION	100	03
			Practical – VIII: 1	50	02
			Practical – VIII: 2	50	02
			Project Work	50	02

  
 Head of the Department  
 Department of Zoology  
 Ideal College of Arts & Sciences  
 KAKINADA. -

**IDEAL COLLEGE OF ARTS AND SCIENCES(A)  
HISTORY COURSE STRUCTURE UNDER CBCS  
2019-2020**

Year	Semester	Title	Max. Marks	Credits
I	I	INDIAN HISTORY & CULTURE (647 A.D)	100	04
	II	Indian History & Culture (647 - 1526)	100	04
II	III	Indian History (1526 - 1761)	100	04
	IV	Indian History and Culture (1757 - 1964)	100	04
III	V	History of Modern World (1453 to 1821)	100	04
		History of Culture of Andhra Desha	100	04
	VI	History of Modern World	100	04
		Cultural Tourism	100	04
		Popular Movements in Andhra Desa	100	04
		Contemporary History of Andhra Pradesh	100	04

  
  
**HOD-HISTORY**  
**IDEAL COLLEGE OF ARTS AND SCIENCES (A)**  
**KAKINADA**

# IDEAL COLLEGE OF ARTS AND SCIENCES

(A.P.Govt., Aided, Autonomous & NAAC B)

Dr.P.V.N.RAJU VIDYAPRANGANAM

Samalkot Road – Kakinada

## DEPARTMENT OF ECONOMICS

### B.A ECONOMICS COURSE STRUCTURE 2019-2020

YEAR	Paper	Semester	Title of the Paper	Credits	Marks
First Year	Paper – I	Semester - I	Micro Economics - I	4	100
	Paper – II	Semester – II	Micro Economics – II	4	100
Second Year	Paper – III	Semester – III	Macro Economics – I	4	100
	Paper – IV	Semester – IV	Macro Economics – II	4	100
Third Year	Paper – V	Semester – V	Economic Development and Indian Economy	4	100
	Paper – VI	Semester – V	Indian and Andhra Pradesh Economy	4	100
	Paper – VII A	Semester – VI	Agricultural Economics	4	100
	<b>Cluster Elective - (A) Agri Business</b>				
	Paper – VIII A-1	Semester – VI	Agri Business Environment in Andhra Pradesh	4	100
	Paper – VIII A-2	Semester – VI	Agricultural output marketing	4	100
	Paper – VIII A-3	Semester – VI	Project Work	4	100

*G. Steeven Raju*

**Dr. G. STEEVEN RAJU**

**HOD-ECONOMICS**

**IDEAL COLLEGE OF ARTS AND SCIENCES (A)**

**KAKINADA**



**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**POLITICAL SCIENCE COURSE STRUCTURE UNDER CBCS**  
**2019-2020**

Year	Semester	Title	Max. Marks	Credits
I	I	Introduction to Political Science	100	04
	II	Basic Organs of the Government	100	04
II	III	Indian Government and Politics	100	04
	IV	Indian Political Process	100	04
III	V	Indian Political Thought	100	04
	VI	Western Political Thought	100	04
		International Relations	100	04
		Indian Foreign Policy	100	04
		Contemporary Global Issues	100	04

*K. Swamiji*  
**Dr. K. SWAMIJI**  
**HOD-POLITICAL SCIENCE**  
**IDEAL COLLEGE OF ARTS AND SCIENCES (A)**  
**KAKINADA**

# IDEAL COLLEGE OF ARTS AND SCIENCES

(Autonomous & NAAC-B)

DR.P.V.RAJU VIDYAPRANGANAM

KAKINADA-533002

DEPARTMENT OF AGRICULTURE

Course structure under CBCS (2019-20)

B. Voc – Sustainable Agriculture

Year	Semester	Title	Max. Marks	Credits
I	I	Fundamentals of soil science	100	4
		Fundamentals of agronomy	100	4
		Fundamentals of horticulture	100	4
		Fundamentals of entomology and insect ecology	100	4
	II	Manures, fertilizers and soil fertility management	100	4
		Plantation crops, spices and fruits	100	4
		Fundamentals of plant breeding and seed technology	100	4
		Fundamentals of agricultural engineering	100	4

*B. Panthar*  
Head of the Department  
AGRICULTURE  
Ideal College of Arts & Sciences (A)  
Kakinada

# IDEAL COLLEGE OF ARTS & SCIENCES: KAKINADA

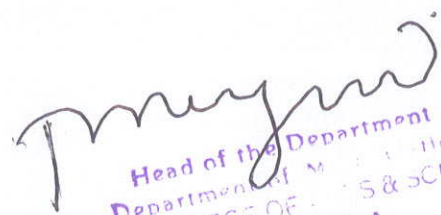
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Dr. P.V.N.RAJU VIDYAPRANGANAM

## B.A./B.Sc. Mathematics COURSE STRUCTURE 2018-19

Semester	Paper	Subject	Hrs.	Credits	IA	ES	Total
<b>FIRST YEAR</b>							
SEMESTER I	Paper-I	Differential Equations & Differential Equations Problem Solving Sessions	6	5	25	75	100
SEMESTER II	Paper-II	Solid Geometry & Solid Geometry Problem Solving Sessions	6	5	25	75	100
<b>SECOND YEAR</b>							
SEMESTER III	Paper-III	Abstract Algebra & Abstract Algebra Problem Solving Sessions	6	5	25	75	100
SEMESTER IV	Paper-IV	Real Analysis & Real Analysis Problem Solving Sessions	6	5	25	75	100
<b>THIRD YEAR</b>							
SEMESTER V	Paper-V	Ring Theory & Vector Calculus & Ring Theory & Vector Calculus Problem Solving	6	5	25	75	100
SEMESTER V	Paper-VI	Linear Algebra & Linear Algebra Problem Solving Sessions	6	5	25	75	100
SEMESTER VI	Paper-VII	Elective (any one) * A. Laplace-Transformations B. Numerical Analysis C. Number Theory D. Graph Theory & Elective Problem-Solving Sessions	5	5	25	75	100
		Cluster Electives: *** VIII A. 1. Integral Transformations & Problem-Solving Sessions	5	5	25	75	100
	Paper-VIII	2. Special Functions & Problem-Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100
		VIII B. 1. Advanced Numerical Analysis & Problem Solving Sessions	5	5	25	75	100
		2. special Functions & Problem-Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100
		VIII C. 1. Principles of Mechanics & Problem-Solving Sessions	5	5	25	75	100
		2. Fluid Mechanics & Problem-Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100
		VIII D. 1. Applied Graph Theory & Problem-Solving Sessions	5	5	25	75	100
		2. Special Function & Problem-Solving Sessions	5	5	25	75	100
		3. Project	5	5	50	50	100

\*Candidate has to choose only one paper from VII(A) or VII(B) or VII(C) or VII(D)  
\* Candidates are advised to choose Cluster (A) if they have chosen VII (A) and Choose Cluster (B) if they have chosen VII(B) etc. However, a candidate may choose any cluster irrespective of what they have Chosen in paper VII.

  
 Head of the Department  
 Department of Mathematics  
 IDEAL COLLEGE OF ARTS & SCIENCES  
 KAKINADA.



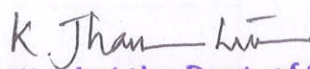
**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**PHYSICS COURSE STRUCTURE UNDER CBCS**  
**2018-2019**

Year	Semester	Paper	Title	Marks	Credits
I	I	I	Mechanics & Properties of Matter	100	03
			Practical	50	02
	II	II	Waves & Oscillations	100	03
			Practical	50	02
II	III	III	Optics	100	03
			Practical	50	02
	IV	IV	Thermodynamics & Radiation Physics	100	03
			Practical	50	02
III	V	V	Electricity magnetions & Electronics.	100	03
			Practical	50	02
		VI	Modern Physics	100	03
			Practical	50	02
	VI any one paper from A,B and C any one cluster from I, II, and III	VII A	Anylos and digital electronics	100	03
			Practical	50	02
		VII A1	Introduction to micro procesolsand micro controller	100	03
			Practical	50	02
		VII A2	Computational Methods and programming	100	03
			Practical	50	02
		VII A3	Electronic Instrumentation	100	03
		VII B	Material Science	100	03
			Practical	50	02
		VII B1	Fundamentals of Nano Science	100	03
			Practical	50	02
		VII B2	Synthesis and charactriztion of nano Materials	100	03
			Practical	50	02
		VII B3	Applications of Nano Materials and Devices	100	03
			Practical	50	02
		VII C	Renewable Energy	100	03
	Practical		50	02	
	VII C1	Solar thermal and photo voltaic aspects	100	03	
		Practical	50	02	
	VII C2	Wind hydro energies	100	03	
Practical		50	02		
VII C3	Energy Storage divices	100	03		
	Practical	50	02		

**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**CHEMISTRY COURSE STRUCTURE UNDER CBCS**  
**2018-2019**

Year	Semester	Paper	Title	Marks	Credits	
I	I	I	Inorganic and Organic Chemistry	100	03	
			Practical - I	50	02	
	II	II	Physical and General Chemistry	100	03	
			Practical - II	50	02	
II	III	III	Inorganic and Organic Chemistry	100	03	
			Practical - III	50	02	
	IV	IV	Physical Chemistry and Spectroscopy	100	03	
			Practical - IV	50	02	
	V	V	V	Inorganic, Organic and Physical chemistry	100	03
				Practical-V	50	02
VI		VI	Inorganic, Organic and Physical chemistry	100	03	
			Practical -VI	50	02	
VI Any one Elective paper from VII A, B, C	VII A	VII A	Elective: Analytical Method in Chemistry	100	03	
			Practical- VII A	50	02	
	VII B	VII B	Elective: Environmental Chemistry	100	03	
			Practical: VII B	50	02	
	VII C	VII C	Elective : Green Chemistry	100	03	
			Practical -VII C	50	02	
	III	VIII A	VIII A	<b>Cluster Elective I:</b>		
				VIII-A-1 : Polymer Chemistry	100	03
				VIII-A-2: Insrtumental Methods of Analysis	100	03
				VIII-A-3: Analysis of Drugs, Foods, Diary Products& Biochemical Analysis	100	03
Practical VIII-A-1				50	02	
Practical VIII-A-2				50	02	
Project Work				50	02	
<b>Cluster Elective II:</b>						
VIII - B-1 Fuel Chemistry and Batteries				100	03	
VIII - B-2 Inorganic meterials of Industrial Importance				100	03	
Any one Cluster from				VIII B		

Year	Semester	Paper	Title	Marks	Credits
	VIII A, B, C		VIII - B-3 Analysis of Industrial Products	100	03
			Practical VIII - B-1	50	02
			Practical VIII - B-2	50	02
			Project Work	50	02
			<b>Cluster Elective II:</b>		
	VIII C		VIII - C-1 Organic Spectroscopic Techniques	100	03
			VIII - C-2 Advanced Organic Reactions	100	03
			VIII - C-3 Pharmaceutical and Medicinal Chemistry	100	03
			Practical VIII - C-1	50	02
			Practical VIII - C-2	50	02
			Project Work	50	02

  
 Head of the Dept. of Chemistry  
 Ideal College of Arts & Sciences  
 KAKINADA

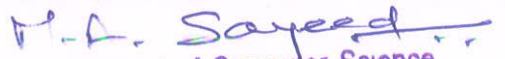


**IDEAL COLLEGE OF ARTS & SCIENCES: KAKINADA**  
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**Department of Computer Science**  
**B.Sc. Computer Science Syllabus under CBCS w.e.f. 2015-2016 Batch**

**Structure of Computer Science Syllabus 2018-2019**

Semester	Paper	Subject	Hrs.	Credits	IA	ES	Total
<b>FIRST YEAR</b>							
SEMESTER I	I	Computer Fundamentals and Photoshop	4	3	25	75	100
		Photo Shop Lab	2	2	0	50	50
SEMESTER II	II	Programming in C	4	3	25	75	100
		Programming in C Lab	2	2	0	50	50
<b>SECOND YEAR</b>							
SEMESTER III	III	Object Oriented Programming Using Java	4	3	25	75	100
		Object Oriented Programming Using Java Lab	2	2	0	50	50
SEMESTER IV	IV	Data Structures	4	3	25	75	100
		Data Structures using Java Lab	2	2	0	50	50
<b>THIRD YEAR</b>							
SEMESTER V	V	DBMS	3	3	25	75	100
		DBMS Lab	2	2	0	50	50
	VI	Software Engineering	3	3	25	75	100
		Software Engineering Lab	2	2	0	50	50
SEMESTER VI	VII	<b>Elective-I</b>					
		Computer Networks	3	3	25	75	100
		Computer Networks Lab	2	2	0	50	50
	VIII	<b>Elective-II (Cluster A)</b>					
		1. Foundations of Data Science	3	3	25	75	100
		Foundations of Data Science Lab (through R)	2	2	0	50	50
		2. Big Data Technology	3	3	25	75	100
		Big Data Technology Lab (Hadoop)	2	2	0	50	50
		Project Work	5	5	25	75	100

  
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**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**BOTANY COURSE STRUCTURE UNDER CBCS**  
**2018-2019**

Year	Semester	Paper	Title	Hours/ Week	Max. Marks(SEE)	Marks in CIA	Credits		
I	I	I	Microbial Diversity, Algae and Fungi	04	75	25	03		
			Microbial Diversity, Algae and Fungi - Lab	02	Max.Marks-50 internal assessment at semester end		02		
	II	II	Diversity of Archaeogoniates & Plant Anatomy	04	75	25	03		
			Diversity of Archaeogoniates & Plant Anatomy - Lab	02	Max.Marks-50 External assessment at semester end		02		
II	III	III	Plant Taxonomy and Embryology	04	75	25	03		
			Plant Taxonomy and Embryology - Lab	02	Max.Marks-50 internal assessment at		02		
	IV	IV	Plant Physiology and Metabolism	04	75	25	03		
			Plant Physiology and Metabolism - Lab	02	Max.Marks-50 External assessment		02		
V	V	V	Cell Biology, Genetics and Plant Breeding	04	75	25	03		
			Cell Biology, Genetics and Plant Breeding - Lab	02	Max.Marks-50 internal assessment at semester end		02		
		VI	VI	Plant Ecology and Phytogeography	04	75	25	03	
				Plant Ecology and Phytogeography - Lab	02	Max.Marks-50 External assessment at semester end		02	
	VII (A) - Elective	VII (A) - Elective	VII (A) - Elective	Organic farming and sustainable agriculture	04	75	25	03	
				Organic farming and sustainable agriculture - Lab	02	Max.Marks-50 External assessment at semester end		02	
		VII (B)	VII (B)	VII (B)	Nursery, Gardening and Floriculture	04	75	25	03

Year	Semester	Paper	Title	Hours/ Week	Max. Marks(SEE)	Marks in CIA	Credits
III	VII & VIII any one paper from A,B and C any one cluster from I, II, and III	VII (B) Elective	Nursery, Gardening and Floriculture - Lab	02	Max.Marks-50 External assessment at semester end		02
		VII (C) Elective	Plant Tissue culture and its Biotechnological applications	04	75	25	03
			Plant Tissue culture and its Biotechnological applications - Lab	02	Max.Marks-50 External assessment at semester end		02
		VIII (A1) Cluster	Plant Diversity and Human welfare	04	75	25	03
			Plant Diversity and Human welfare - Lab	02	Max.Marks-50 External assessment at semester end		02
		VIII (A2). Cluster	Ethanobotany and medicinal botany	04	75	25	03
			Ethanobotany and medicinal botany - Lab	02	Max.Marks-50 External assessment at semester end		02
		VIII (A3) Cluster	Pharmacognosy and phytochemistry	04	75	25	03
			Pharmacognosy and phytochemistry Lab	02	Max.Marks-50 External assessment at semester end		02
		VIII (B1) Cluster	Biological Instrumentation and methadology	04	75	25	03
			Biological Instrumentation and methadology - Lab	02	Max.Marks-50 External assessment at semester end		02
		VIII (B2) Cluster	Mushroom cultivation and Technology	04	75	25	03
			Mushroom cultivation and Technology - lab	02	Max.Marks-50 External assessment at semester end		02
		VIII (B3) Cluster	Internship/project work preferably either in an institution or Industry	-	100		03

*S. Padmalatha*  
Head of B.Sc. partmer.  
Department of Botany  
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# IDEAL COLLEGE OF ARTS & SCIENCES

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Dr. PVN RAJU VIDYAPRANGANAM

SAMALKOTA ROAD, KAKINADA

## ZOOLOGY COURSE STRUCTURE UNDER CBCS 2018-2019

YEAR	SEMESTER	PAPER	TITLE	MARKS	CREDITS	
I	I	I	Animal Diversity of Invertebrates	100	03	
			Practical - I	50	02	
	II	II	Animal Diversity of Chordates	100	03	
			Practical - II	50	02	
II	III	III	Cytology, Genetics and Evaluation	100	03	
			Practical - III	50	02	
	IV	IV	Embryology, Physiology and Ecology	100	03	
			Practical - IV	50	02	
III	V	V	Animal Biotechnology	100	03	
			Practical - V	50	02	
		VI	Animal Husbandry	100	03	
			Practical - VI	50	02	
	*Any one Paper from A, B and C	VII (A)*	Immunology	100	03	
			Practical - VII (A)	50	02	
		VII (B)*	Cellular Metabolism and Molecular Biology	100	03	
			Practical - VII (B)	50	02	
		VII (C)*	Bioinformatics	100	03	
			Practical - VII (C)	50	02	
	** Any one cluster from I, II and III	VI	Cluster VIII-A**	<b>Cluster Electives –VIII-A : Medical Diagnostics</b>		
				1. Clinical Biochemistry	100	03
				2. Haematology	100	03
				3. Clinical Microbiology	100	03
				Practical – VIII: 1	50	02
				Practical – VIII: 2	50	02
Project Work				50	02	
Cluster VIII-B**				<b>Cluster Electives –VIII-B : Aquaculture</b>		
				1. Principles of Aquaculture	100	03
				2. Aquaculture Management	100	03
	3. Postharvest Technology	100	03			
	Practical – VIII: 1	50	02			
	Practical – VIII: 2	50	02			
Project Work	50	02				
Cluster VIII-C**	<b>Cluster Electives – VIII-C : Sericulture</b>					
	1. Gen. Sericulture, Mulberry cultivation and	100	03			

			Management		
			2. Biology of Mulberry Silkworm and Silkworm rearing Technology	100	03
			3. Silk Technology, Silk Marketing and Extension	100	03
			Practical – VIII: 1	50	02
			Practical – VIII: 2	50	02
			Project Work	50	02

*H. R. ...*

**Head of the Department  
Department of Zoology  
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**IDEAL COLLEGE OF ARTS AND SCIENCES(A)  
HISTORY COURSE STRUCTURE UNDER CBCS  
2018-2019**

Year	Semester	Title	Max. Marks	Credits
I	I	INDIAN HISTORY & CULTURE (647 A.D)	100	04
	II	Indian History & Culture (647 - 1526)	100	04
II	III	Indian History (1526 - 1761)	100	04
	IV	Indian History and Culture (1757 - 1964)	100	04
III	V	History of Modern World (1453 to 1821)	100	04
		History of Culture of Andhra Desha	100	04
	VI	History of Modern World	100	04
		Cultural Tourism	100	04
		Popular Movements in Andhra Desa	100	04
		Contemporary History of Andhra Pradesh	100	04

*Chs padu*

HOD-HISTORY  
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# IDEAL COLLEGE OF ARTS AND SCIENCES

(A.P.Govt., Aided, Autonomous & NAAC B++)

Dr.P.V.N.RAJU VIDYAPRANGANAM

Samalkot Road – Kakinada

## DEPARTMENT OF ECONOMICS

### B.A ECONOMICS COURSE STRUCTURE 2018-2019

YEAR	Paper	Semester	Title of the Paper	Credits	Marks
First Year	Paper – I	Semester - I	Micro Economics - I	4	100
	Paper – II	Semester – II	Micro Economics – II	4	100
Second Year	Paper – III	Semester – III	Macro Economics – I	4	100
	Paper – IV	Semester – IV	Macro Economics – II	4	100
Third Year	Paper – V	Semester – V	Economic Development and Indian Economy	4	100
	Paper – VI	Semester – V	Indian and Andhra Pradesh Economy	4	100
	Paper – VII A	Semester – VI	Agricultural Economics	4	100
	<b>Cluster Elective - (A) Agri Business</b>				
	Paper – VIII A-1	Semester – VI	Agri Business Environment in Andhra Pradesh	4	100
	Paper – VIII A-2	Semester – VI	Agricultural output marketing	4	100
	Paper – VIII A-3	Semester – VI	Project Work	4	100

*G. Steeven Raju*

**Dr. G. STEEVEN RAJU**  
HOD-ECONOMICS

IDEAL COLLEGE OF ARTS AND SCIENCES (A)  
KAKINADA

**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**POLITICAL SCIENCE COURSE STRUCTURE UNDER CBCS**  
**2018-2019**

Year	Semester	Title	Max. Marks	Credits
I	I	Introduction to Political Science	100	04
	II	Basic Organs of the Government	100	04
II	III	Indian Government and Politics	100	04
	IV	Indian Political Process	100	04
III	V	Indian Political Thought	100	04
	VI	Wastern Political Thought	100	04
		International Relations	100	04
		Indian Foreign Policy	100	04
		Contemporary Global Issues	100	04

*K. Swamiji*  
**Dr. K. SWAMIJI**  
**HOD-POLITICAL SCIENCE**  
**IDEAL COLLEGE OF ARTS AND SCIENCES (A)**  
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**IDEAL COLLEGE OF ARTS AND SCIENCES(A)**  
**COMMERCE COURSE STRUCTURE UNDER CBCS**  
**2018-2019**

Year	Semester	Title	Max. Marks	Credits
I	I	Accounting -1	100	04
		Business organization and management	100	04
		Business Economics - I	100	04
	II	Accounting -II	100	04
		Business Environment	100	04
		Business Economics - II	100	04
II	III	Corporate Accounting	100	04
		Banking and theory practices	100	04
		Business statistics	100	04
	IV	Accounting for service Organizations	100	04
		Income Tax	100	04
		Business Law	100	04
		Entrepreneurship	50	02
III	V	Business Leadership	50	02
		Cost Accounting	100	04
		Goods and service tax	100	04
		Commercial Geography	100	04
		Rural and farm credit	100	04
		Central banking	100	04
		project work	100	04
	VI	Tally	100	04
		Marketing	100	04
		Auditing	100	04
		Management accounting	100	04
		Marketing financial service	100	04
		Financial Service	100	04
project work	100	04		

*R. V. ...*

Commerce Department  
 Ideal College of Arts and Sciences  
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