Shri Acharyaratna Deshbhooshan Shikshan Prasarak Mandal, Kolhapur Mahavir Mahavidyalaya, Kolhapur (Autonomous)

Affiliated to Shivaji University, Kolhapur



Syllabus for Choice Based Credit System (CBCS) Bachelor of Vocation (B. Voc.) Programme

Programme	Bachelor of Vocation in Agriculture
Part	I
Semester	I
Course Code	BV D
Course Name	
Course Title	
Paper No.	

Under the Faculty of Interdisciplinary Studies

(To be introduced from Academic Year 2021 – 22 onwards) Subject to the revisions & modifications made from time to time

Shri Acharyaratna Deshbhooshan Shikshan Prasarak Mandal, Kolhapur

Mahavir Mahavidyalaya, Kolhapur (Autonomous) Affiliated to Shivaji University, Kolhapur



Syllabus for Choice Based Credit System (CBCS) Bachelor of Vocation (B. Voc.) Programme

Programme	Bachelor of Vocation in Agriculture
Part	I
Semester	I
Course Code	BV D 11
Course Name	
Course Title	
Paper No.	

Under the Faculty of Interdisciplinary Studies

(To be introduced from Academic Year 2021 – 22 onwards) Subject to the revisions & modifications made from time to time

Mahavir Mahavidyalaya, Kolhapur (Autonomous) Affiliated to Shivaji University, Kolhapur

(New syllabus under Autonomy to be introduced from June, 2021 onwards)

A) Primary Information:				
Programme	Bachelor of Vocation (B. Voc.) Agriculture CBCS			
Part	I Semester I			
Course	Soil Science I	Course Code	BV D 11	
Paper No.		Course Type	Semester	
Total Marks	50 Marks	Implementation	2021 - 22	
Total Credits	03	Contact Hours	04/Week	
Course Title				

B) Co	B) Course Objectives:		
i)	Understanding of terminology and concepts in soil science		
ii)	To study formation of soil and properties of soil		
iii)	The students are expected to gain theoretical knowledge on different aspects of soil physics like soil textural classes, soil structure, soil aggregation, soil water potential, soil water retention, movement, field water balance, soil air, soil thermal properties etc.		
iv)	To study the organic matter content of soil		

C) Course Syllabi:		
(CR = Credits / IH: Instructional Hours)		
Units	CR	IH
Unit I :		
1.1 Pedological and edaphological concept, Origin of the earth		
1.2 Soil genesis - rocks and minerals, Weathering	0.75	12
1.3 Soil formation factors and processes		
1.4 Components of soil, Soil profile		
Unit II :		
2.1 Soil physical properties	1	
2.2 Soil texture, Soil structure		12
2.3 Soil density, Soil porosity, soil colour, Soil Consistency and		12
plasticity		
2.4 Soil reaction, Soil colloids		
Unit III :		
3.1 Soil water: Importance, Functions, Structure, Factors,		
Classification		
3.2 Soil moisture constants, Movement of soil water, infiltration,		12
percolation permeability, Drainage		12
3.3 Thermal properties of soils, Soil temperature, Soil air		
3.4 Ion exchange, CEC and AEC Factors influencing ion exchange		
and significance		

Unit IV :		
4.1 Soil organic matter- Composition, Fraction, Role		
4.2 Humus- Formation, Fraction, Theories, Properties, Carbon		
cycle C:N ratio	0.75	12
4.3 Soil biology- Definition, Soil biomass, Soil organism their	0.75	12
beneficial and harmful effect		
4.4 Bio fertilizers- Definition, Types and their potential nitrogen		
fixing bacteria		

D) Reference Materials		
D1) Text Books for Reading		
1.	Introductory Soil Science by D.K. Das.	
2.	Fundamentals of Soil Science by Indian Society of Soil Science	
3.	Textbook of Soil Science by T. Biswas, S Mukherjee	
4.	Concept of Soil Science book by S.G. Rajput	
D2) Books for Reference		
1.	A text book of Soil Science - Indian Society of Soil Science	
2.	Physical properties of soil by C. C. Shah and NK. Narayan (1966)	
3.	Fundamentals of Soil Science (8th edition) 1990 by Henry. D. Fothk.	

E) Suggested methods of Teaching:		
i)	Online teaching/ Offline	
ii)	Power point presentation	
iii)	Group discussion	
iv)	Field visit	

F) Co	urse Outcomes:	Blooms Taxonomy
CO1	Students will gain knowledge on concepts and	
	principles of Soil Science	
CO2	Comprehensive knowledge on rocks and minerals,	
	their composition and the types of soils formed from	
	different parent materials	
CO3	Understand the role of soil forming factors and	
	processes in soil formation	
CO4	Understand various soil physical, chemical and	
	biological properties and their impact on plant	
	growth.	

G) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	Total Marks	50

H) Suggested techniques for Continuous Internal Evaluation (10 Marks)

(10 Warks)		
1.	Home assignments	
2.		
3.		
4.		
5.	Total Marks	10

I) Question Paper Pattern (40 Marks)		
Q. No.	Nature / Type of Question	Marks
1.	MCQ	10
2.	Short Answer	10
3.	Short Note	10
4.	Long Answer	10
5.	Total Marks	40

|| शीलं परं भूषणम् || Shri Acharyaratna Deshbhooshan Shikshan Prasarak Mandal, Kolhapur Mahavir Mahavidyalaya, Kolhapur (Autonomous) Affiliated to Shivaji University, Kolhapur



Syllabus for Choice Based Credit System (CBCS) Bachelor of Vocation (B. Voc.) Programme

Programme	Bachelor of Vocation in Agriculture
Part	I
Semester	I
Course Code	BV D 12
Course Name	
Course Title	
Paper No.	

A) Primary Information:				
Programme	Bachelor of Vocation (B. Voc.) Agriculture CBCS			
Part	I Semester I			
Course	Fundamentals	Course Code	BV D 12	
	of Agronomy			
Paper No.		Course Type	Semester	
Total Marks	50 Marks	Implementation	2021 - 22	
Total Credits	03	Contact Hours	04/Week	
Course Title				

B) Course Objectives:		
i)	Knowledge and concept of different techniques of crop production	
ii)	Knowledge of tillage (zero and minimum tillage)	
iii)	Study of Cropping and farming systems for sustainable agriculture	
iv)	Knowledge and concept of weeds (classification and characters)	

C)	Course	Syllabi:	
\sim	Course	Oynabi.	

(CR = Credits / IH: Instructional Hours)		
Units	CR	IH
Unit I :		
1.1 History of agriculture and agronomy, Agronomy and its scope,		
Agro climatic zones of India and Maharashtra		
1.2 Classification of Seeds and Sowing- quality of seed, seed		
testing, seed multiplication, seed treatment, sowing methods, crop		
stand establishment	0.75	12
1.3 Planting geometry and its effect on growth and yield – sole,	0.75	14
paired and skipped row planting.		
1.4 Tillage and tilth - Definition, objectives, types of tillage,		
implements used, modern concepts of tillage, tilth and		
characteristics of ideal tilth, Harvesting - Signs of maturity,		
methods of harvesting.		
Unit II :		
2.1 Weed Problems- Meaning, Criteria of Weed, Classification of		
weed, Crop weed competition, Characteristics of weed,		
Multiplication and dissemination		
2.2 Weed control, Preventive method, Curative method, Biological		12
method, Chemical control		
2.3 Classification of herbicides, herbicides and its other names,		
Selective herbicide, Contact herbicide, Active ingredient, Acid		
equivalent, Orbanche and Striga		

2.4 Herbicide for weed control in different crops		
Unit III :		
3.1 Plant nutrients and fertilizers- Crop nutrition, Manures and		
fertilizers, Nutrient use efficiency		
3.2 Irrigation drainage- water resources, Soil-plant-water	0.75	10
relationship, Crop water requirement	0.75	12
3.3 Irrigation-Scheduling criteria and methods		
3.4 Quality of irrigation water, Logging, Drainage		
Unit IV :		
4.1 Cropping System and Pattern- Shifting cultivation, Crop		
rotation, Sustainable agriculture, Cropping system, Cropping		
pattern,		
4.2 Farming system, Mixed farming, Sole cropping, Cropping		10
scheme, Monoculture		14
4.3 Cropping intensity, Types of cropping system,		
4.4 Multiple cropping, Intercropping, Mixed cropping, Sequential		
cropping, Multistory cropping, Terra farming, Aeroponics		

D) Reference Materials		
D1) Text Books for Reading		
1.	Principles of Agronomy by S. R. Reddy.	
2.	Principles of Agronomy by Reddy & Reddy.	
3.	Weed Science: Basic and Applications by T. K. Das.	
4.	Textbook of Field Crops Production by Rajendra Prasad.	
D2) Books for Reference		
1.	ICAR.2006. Handbook of Agriculture, ICAR, New Delhi.	
2.	Balasubramaniyan, P and Palaniappan, S. P. 2001. Principle and Practices of	
	Agronomy AgroBios (India) Ltd. Jodhpur	
3.	Scientific weed management - Gupta, O.P. 1984. Today and Tomorrow	
	publishers, New Delhi	

E) Suggested methods of Teaching:		
i)	Online teaching/ Offline	
ii)	Power point presentation	
iii)	Group discussion	
iv)	Field visit	

	F) Course Outcomes:	Blooms Taxonomy
CO1	Knowledge about Indian Agriculture and	
	importance, present status, scope and future prospect	
CO2	Knowledge of cropping and farming systems for	
	sustainable agriculture	
CO3	Classification, characters and concept of weeds	

CO4	Herbicides, bio-herbicides- their classification and	
	biological control of weeds	

G) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	Total Marks	50

H) Suggested techniques for Continuous Internal Evaluation (10 Marks)

(10 Marks)		
1.	Home assignments	
2.		
3.		
4.		
5.	Total Marks	10

I) Question Paper Pattern (40 Marks)		
Q. No.	Nature / Type of Question	Marks
1.	MCQ	10
2.	Short Answer	10
3.	Short Note	10
4.	Long Answer	10
5.	Total Marks	40

|| शीलं परं भूषणम् || Shri Acharyaratna Deshbhooshan Shikshan Prasarak Mandal, Kolhapur Mahavir Mahavidyalaya, Kolhapur (Autonomous) Affiliated to Shivaji University, Kolhapur



Syllabus for Choice Based Credit System (CBCS) Bachelor of Vocation (B. Voc.) Programme

Programme	Bachelor of Vocation in Agriculture
Part	I
Semester	I
Course Code	BV D 13
Course Name	
Course Title	
Paper No.	

A) Primary Information:			
Programme	Bachelor of Vocation (B. Voc.) Agriculture CBCS		
Part	I Semester I		Ι
Course	Fundamentals	Course Code	BV D 13
	of Horticulture		
Paper No.		Course Type	Semester
Total Marks	50 Marks	Implementation	2021 - 22
Total Credits	03	Contact Hours	04/Week
Course Title			

B) Course Objectives:	
i)	To understand orchard management
ii)	To increase production and productivity of fruit crops by different propagating
	method
iii)	To study the special horticultural practices
iv)	Knowledge of different fruit crops

C) Course Syllabi:		
(CR = Credits / IH: Instructional Hours)		
Units	CR	IH
Unit I :		
1.1 Horticulture- its definition and branches, Importance and scope		
1.2 Production of fruit crops in Maharashtra and India,	0 75	12
1.3 Export import scenario of fruit crops in India,	0.75	
1.4 Classification of fruit crops on horticultural basis, Climate and		
Soil.		
Unit II :		
2.1 Nursery raising and its importance		
2.2 Plant propagation methods (sexual and asexual)		12
2.3 propagating structures, Use of rootstock in fruit crops		
2.4 Use of bio regulators in propagation and fruit production		
Unit III :		
3.1 Establishments of Orchards, Selection of site for fruit growing,		
Fencing, Wind break, Shelter belt		12
3.2 Orchard Soil management, System of irrigation, weed		
management in orchard		14
3.3 Nutritional management, Different steps in planning and		
layout of orchard		
3.4 Types of Orchard		

Unit IV :		
4.1 Special horticultural practices- Training, Pruning,		
4.2 Bending, Notching, Girdling, Ringing,		12
4.3 Juvenity and flower bud differentiations,		14
4.4 Unfruitfulness, Pollination, Pollinizers, Fertilization and		
Parthenocarpy		

D) Reference Materials		
D1) Text Books for Reading		
1.	Handbook of Horticulture (2002) Chadha, K.L. ICAR, New Delhi	
2.	A handbook of Fruit Science and Technology (2013). D.K. Salunkhe and S.S.	
	Kadam CRC Press	
3.	Fundamentals of Horticulture 2014 Kausal Kumar Misra and Rajesh Kumar	
	Biotech Books	
4.	A handbook of Fruit Production (2010) S. Prasad and U. Kuma Agrobios	
	(India)	
D2) Books for Reference		
1.	Principle of Horticulture and Fruit growing - Kunte and Yawalkar	
2.	Hartman, HT. and Kester, DE. 1986. Plant propagation - Principles and	
	Pratices. Prentice - Hall, New Delhi	
3.	Chadha, K.L. 2003. Handbook of Horticulture, ICAR, New Delhi. Choudhary,	
	B. 1983. Vegetable National Trust, New Delhi.	
E) Suggested methods of Teaching:		
i)	Online teaching/ Offline	
ii)	Power point presentation	
iii)	Group discussion	
iv)	Field visit	

	F) Course Outcomes:	Blooms
		Taxonomy
CO1	Students will be able to identify plant vegetative structure	
CO2	The student will be able to understand different branches of	
	horticulture	
CO3	Students will understand how to propagate plant, manage	
	and harvest a variety of plant.	
CO4	Students will learn how horticulture relates to the economy	
	and environments, both currently and in the future	

G) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	Total Marks	50

H) Suggested techniques for Continuous Internal Evaluation (10 Marks)		
1.	Home assignments	
2.		
3.		
4.		
5.	Total Marks	10

I) Question Paper Pattern (40 Marks)		
Q. No.	Nature / Type of Question	Marks
1.	MCQ	10
2.	Short Answer	10
3.	Short Note	10
4.	Long Answer	10
5.	Total Marks	40

Shri Acharyaratna Deshbhooshan Shikshan Prasarak Mandal, Kolhapur Mahavir Mahavidyalaya, Kolhapur (Autonomous) Affiliated to Shivaji University, Kolhapur



Syllabus for Choice Based Credit System (CBCS) Bachelor of Vocation (B. Voc.) Programme

Programme	Bachelor of Vocation in Agriculture
Part	I
Semester	I
Course Code	BV D 11
Course Name	
Course Title	
Paper No.	

A) Primary Information:				
Programme	Bachelor of V	Bachelor of Vocation (B. Voc.) Agriculture CBCS		
Part	Ι	Semester	Ι	
Course	Soil Science I	Course Code	BV D 11	
			(Practical)	
Paper No.		Course Type	Semester	
Total Marks	50 Marks	Implementation	2021 - 22	
Total Credits	05	Contact Hours	06/ Week	
Course Title				

	B) Course Objectives:	
i)	To study the basic analytical chemistry	
ii)	Study of rocks and minerals	
iii)	To study the soil profile, soil texture, soil colour	
iv)	To study the organic matter content of soil	

C) Course Syllabi: (CR = Credits / IH: Instructional Hours)		
Practical	CR	IH
1.Study of soil profile		
2.Identification rocks and minerals		
3. Study of soil sampling tools And equipment's		
4.Collection and processing of soil sample for analysis of organic		
carbon, soil PH and electrical conductivity		
5. Analytical chemistry – Basic concept, techniques and calculation	5	75
6. Determination of soil color	3	75
7. Estimation of organic matter content of soil		
8. Determination of soil texture and particle size analysis by		
hydrometer method		
9. Determination of Bulk density and particle density of soil		
10.Visit to soil testing laboratory		

	D) Reference Materials
D1) Text Books for Reading	
1.	Introductory Soil Science by D.K. Das.
2.	Fundamentals of Soil Science by Indian Society of Soil Science
3.	Textbook of Soil Science by T. Biswas, S Mukherjee
4.	Concept of Soil Science book by S.G. Rajput

	D2) Books for Reference
1.	A text book of Soil Science – Indian Society of Soil Science
2.	Physical properties of soil by C. C. Shah and NK. Narayan (1966)
3.	Fundamentals of Soil Science (8th edition) 1990 by Henry. D. Fothk.

E) Suggested methods of Teaching:	
i)	Online teaching/ Offline
ii)	Power point presentation
iii)	Group discussion
iv)	Field visit

	F) Course Outcomes:	Blooms Taxonomy
CO1	Students will gain knowledge on analytical chemistry	
CO2	Comprehensive knowledge on rocks and minerals,	
	their composition and the types of soils formed from	
	different parent materials	
CO3	Knowledge of collection and processing of soil	
	sample for analysis of organic carbon, soil PH and	
	electrical conductivity	
CO4	Understand various soil physical, chemical and	
	biological properties and their impact on plant	
	growth.	

	G) Scheme of Course Evaluation	n
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	Total Marks	50

	I) Question Paper Pattern (40 Marks)		
Q. No.	Nature / Type of Question	Marks	
1.	Practical	25	
2.	Submission Practical record book and project report	15	
3.	Viva-voce	10	
4.			
5.	Total Marks	50	

Shri Acharyaratna Deshbhooshan Shikshan Prasarak Mandal, Kolhapur Mahavir Mahavidyalaya, Kolhapur (Autonomous) Affiliated to Shivaji University, Kolhapur



Syllabus for Choice Based Credit System (CBCS) Bachelor of Vocation (B. Voc.) Programme

Programme	Bachelor of Vocation in Agriculture
Part	I
Semester	I
Course Code	BV D 12
Course Name	
Course Title	
Paper No.	

A) Primary Information:			
Programme	Bachelor of V	ocation (B. Voc.) Ag	riculture CBCS
Part	Ι	Semester	Ι
Course	Agronomy	Course Code	BV D 12
			(Practical)
Paper No.		Course Type	Semester
Total Marks	50 Marks	Implementation	2021 - 22
Total Credits	05	Contact Hours	06 / Week
Course Title			

	B) Course Objectives:	
i)	Knowledge of different sowing method	
ii)	Knowledge of tillage (zero and minimum tillage)	
iii)	Study of weed and management of weed	
iv)	Study of seed and seed treatment	

C) Course Syllabi:			
	(CR = Credits / IH: Instructional Hours)		
	Practical	CR	IH
1.Study of	of agro-climatic zones of India		
2.Study of	of different methods of sowing		
3.Identif	ication of seeds and crop plants at different growth stages		
4.Identif	ication of weeds in crops		
5.Study of	of yield contributing characters and yield estimation		
6.Seed ge	ermination and viabilities test	5	75
7.Determ	nination of purity, germination percentage and viabilities		
of seed			
8.Practice of seed treatment in different field crops			
9.Study of different methods of manures and fertilizer application			
10.Identification and use of tillage implements			
11.Calculation of plant population, seed rate and fertilizer doses			
for different field crops			
12.Field visit			
	D) Reference Materials		
	D1) Text Books for Reading		
1.	Principles of Agronomy by S. R. Reddy.		
2.	Principles of Agronomy by Reddy & Reddy.		
3.	Weed Science: Basic and Applications by T. K. Das.		
4.	Textbook of Field Crops Production by Rajendra Prasad.		

D2) Books for Reference		
1.	ICAR.2006. Handbook of Agriculture, ICAR, New Delhi.	
2.	Balasubramaniyan, P and Palaniappan, S. P. 2001. Principle and Practices of	
	Agronomy AgroBios (India) Ltd. Jodhpur	
3.	Scientific weed management – Gupta, O.P. 1984. Today and Tomorrow	
	publishers, New Delhi	

E) Suggested methods of Teaching:		
i)	Online teaching/ Offline	
ii)	Power point presentation	
iii)	Group discussion	
iv)	Field visit	

	F) Course Outcomes:	Blooms Taxonomy
CO1	Students will be able to identify different crop seed	
	and weed	
CO2	Knowledge of methods of manures and fertilizer	
	application	
CO3	Student will understand how to calculate plant	
	population, seed rate and fertilizer doses for different	
	field crops	
CO4	Knowledge of tillage implements	

G) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	Total Marks	50

I) Question Paper Pattern (40 Marks)			
Q. No.	Nature / Type of Question	Marks	
1.	Practical	25	
2.	Submission Practical record book and project report	15	
3.	Viva-voce	10	
4.			
5.	Total Marks	50	

Shri Acharyaratna Deshbhooshan Shikshan Prasarak Mandal, Kolhapur Mahavir Mahavidyalaya, Kolhapur (Autonomous) Affiliated to Shivaji University, Kolhapur



Syllabus for Choice Based Credit System (CBCS) Bachelor of Vocation (B. Voc.) Programme

Programme	Bachelor of Vocation in Agriculture
Part	I
Semester	I
Course Code	BV D 13
Course Name	
Course Title	
Paper No.	

A) Primary Information:			
Programme	Bachelor of Vocation (B. Voc.) Agriculture CBCS		
Part	I	Semester	Ι
Course	Fundamentals	Course Code	BV D 13
	of Horticulture		(Practical)
Paper No.		Course Type	Semester
Total Marks	50 Marks	Implementation	2021 - 22
Total Credits	03	Contact Hours	04/Week
Course Title			

B) Course Objectives:		
i)	To understand orchard management	
ii)	Study about garden tools and implements	
iii)	To study the special horticultural practices	
iv)	Knowledge of different fruit crops	

C) Course Syllabi:			
(CR = Credits / IH: Instructional Hours)			
	Practical's	CR	IH
1.Study of	of garden tools and Implements		
2.Identif	ication of horticultural crops		
3.Prepar	ation of seed bed/ nursery bed		
4.Study of	of propagation media, containers, potting mixture, potting		
depottin	g, repotting and transplanting		
5.Plant p	ropagation by cutting and layering		75
6.Plant p	ropagation by budding and grafting	5	75
7.Study of	of irrigation methods for horticultural crops	5	
8.Opening and filling of pit			
9.Layout and planting of orchard			
10.Fertilizer application in different crops			
11.Preparation of G.A. for grapes			
12.Visit to commercial orchard			
13.Visit t	o commercial nursery		
	D) Reference Materials		
	D1) Text Books for Reading		
1.	Handbook of Horticulture (2002) Chadha, K.L. ICAR, New	[,] Delhi	
2.	A handbook of Fruit Science and Technology (2013). D.K. S	Salunkhe a	nd S.S.
	Kadam CRC Press		
3.	Fundamentals of Horticulture2014 Kausal Kumar Misra an	ld Rajesh k	Kumar

	Biotech Books	
4.	A handbook of Fruit Production (2010) S. Prasad and U. Kuma Agrobios	
	(India)	
	D2) Books for Reference	
1.	Principle of Horticulture and Fruit growing-Kunte and Yawalkar	
2.	Hartman, HT. and Kester, DE. 1986. Plant propagation- Principles and	
	Pratices. Prentice-Hall, New Delhi	
3.	Chadha, K.L. 2003. Handbook of Horticulture, ICAR, New Delhi. Choudhary,	
	B. 1983. Vegetable National Trust, New Delhi.	
E) Suggested methods of Teaching:		
i)	Online teaching/ Offline	
ii)	Power point presentation	
iii)	Group discussion	
iv)	Field visit	

	F) Course Outcomes:	Blooms Taxonomy
CO1	Students will be able to identify plant vegetative	
	structure	
CO2	Knowledge about special horticultural practice	
CO3	Students will understand how to propagate plant,	
	manage and harvest a variety of plant.	
CO4	Knowledge of important cultural practices for major	
	fruit and plantation crops will be provided (Practical)	

G) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	Total Marks	50

I) Question Paper Pattern (40 Marks)			
Q. No.	Nature / Type of Question	Marks	
1.	Practical	25	
2.	Submission Practical record book and project report	15	
3.	Viva-voce	10	
4.			
5.	Total Marks	50	

Shri Acharyaratna Deshbhooshan Shikshan Prasarak Mandal, Kolhapur Mahavir Mahavidyalaya, Kolhapur (Autonomous) Affiliated to Shivaji University, Kolhapur



Syllabus for Choice Based Credit System (CBCS) Bachelor of Vocation (B. Voc.) Programme

Programme	Bachelor of Vocation in Agriculture
Part	I
Semester	II
Course Code	BV D 21
Course Name	
Course Title	
Paper No.	

A) Primary Information:			
Programme	Bachelor of Vocation (B. Voc.) Agriculture CBCS		
Part	I Semester II		
Course	Soil Science II	Course Code	BV D 21
Paper No.		Course Type	Semester
Total Marks	50 Marks	Implementation	2021 - 22
Total Credits	03	Contact Hours	04/Week
Course Title			

B) Course Objectives:		
i)	To study the manures and fertilizers	
ii)	To study the soil fertility and productivity	
iii)	To manage the soil quality	
iv)	To improve soil health	

C) Course Syllabi:		
(CR = Credits / IH: Instructional Hours)		
Units	CR	IH
Unit I :		
 1.1 Manures - Introduction and importance of organic manures 1.2 Properties and methods of preparation of bulky and concentrated manures - FYM, Compost, Night soil. 1.3 Sewage and Sludge, Sheep and goat manure, Poultry manure, Green manure, Green leaf manuring, Oilcakes. 1.4 Integrated nutrient management 	0.75	12
Unit II :2.1 Fertilizers – Introduction and importance of fertilizer, Chemical fertilizers, Classification2.2 Composition and properties of major complex fertilizers Nano fertilizers, Fertilizer grade and ratio2.3 Materials used in fertilizer, Precautions in mixing fertilizer, soil amendments, fertilizer storage, Fertilizer control order2.4 Reclamation of problematic soil- Mechanical, Chemical and biological method	0.75	12
Unit III :3.1 Meaning, Criteria of essentiality, Form of element absorbed by plants, Elements and its major role3.2 Mobility of nutrients, Classification of essential nutrients- Major	0.75	12

and Micronutrients		
3.3 Ultra micronutrients, Beneficial nutrients, Hidden Hunger		
3.4 Role of essential plant nutrients, Deficiency symptoms, Toxicity		
symptoms		
Unit IV :		
4.1 Soil fertility and productivity		
4.2 Mineralization, Immobilization	0.75	12
4.3 Microbial element transformation (N, P Cycle)		
4.4 Microbial element transformation (K, C Cycle)		

D) Reference Materials		
D1) Text Books for Reading		
1.	Introductory Soil Science by D. K. Das.	
2.	Fundamentals of Soil Science by Indian Society of Soil Science	
3.	Textbook of Soil Science by T. Biswas, S. Mukherjee	
4.	Concept of Soil Science book by S. G. Rajput	
D2) Books for Reference		
1.	A text book of Soil Science – Indian Society of Soil Science	
2.	Yawalkar et.al. (1981): Manures and Fertilizers	
3.	ICAR Handbook of Manure and Fertilizers (1971) Publications	

E) Suggested methods of Teaching:		
i)	Online teaching / Offline	
ii)	Power point presentation	
iii)	Group discussion	
iv)	Field visit	

	F) Course Outcomes:	Blooms Taxonomy
CO1	Imparts knowledge on essential nutrients, soil	
	fertility, nutrient transformations in soil.	
CO2	Manures, fertilizers and soil fertility management	
	through various approaches	
CO3	Useful in making decisions on nutrient dose, choice	
	of fertilizers and method of application etc. practiced	
	in crop production.	
CO4	Understand various Nutrient management concepts	
	and Nutrient use efficiencies of major and	
	micronutrients and enhancement techniques.	

G) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	Total Marks	50

	H) Suggested techniques for Continuous Internal Evaluation (10 Marks)		
1.	Home assignments		
2.			
3.			
4.			
5.	Total Marks	10	

I) Question Paper Pattern (40 Marks)		
Q. No.	Nature / Type of Question	Marks
1.	MCQ	10
2.	Short Answer	10
3.	Short Note	10
4.	Long Answer	10
5.	Total Marks	40



Syllabus for Choice Based Credit System (CBCS) Bachelor of Vocation (B. Voc.) Programme

Programme	Bachelor of Vocation in Agriculture
Part	Ι
Semester	II
Course Code	BV D 22
Course Name	
Course Title	
Paper No.	

A) Primary Information:			
Programme	Bachelor of Vocation (B. Voc.) Agriculture CBCS		
Part	I Semester II		
Course	Agricultural	Course Code	BV D 22
	Meteorology		
Paper No.		Course Type	Semester
Total Marks	50 Marks	Implementation	2021 - 22
Total Credits	03	Contact Hours	04/Week
Course Title	Course Title		

B) Course Objectives:		
i)	To acquire the basic knowledge of climate and weather and its impact on	
	agriculture	
ii)	To study about different climatic factors affecting crop growth and	
	development	
iii)	Study about different weather aberrations	
iv)	Study about climate change, it's cause and impacts	

C) Course Syllabi:		
(CR = Credits / IH: Instructional Hours)		
Units	CR	IH
Unit I :		
1.1 Meaning and scope of Agricultural meteorology		
1.2 Earth Atmosphere - its composition, Extent and structure		
1.3 Atmospheric Weather Variables, Atmospheric pressure, its variation with height	0.75	12
1.4 Wind - Types of wind, Cyclone, Anticyclone, Land breeze and		
Sea breeze		
Unit II :		
2.1 Atmospheric temperature, Atmospheric Humidity, Concept of		
saturation, , Precipitation		
2.2 Vapour pressure, Process of Condensation, Formation of Dew,		12
Fog, Mist, Frost, Cloud	0110	
2.3 Cloud formation and classification, Monsoon mechanism and		
its importance in Indian Agriculture		
2.4 Agriculture weather hazards - Drought, Floods, Frost		
Unit III :		
3.1 Agriculture and weather relations	0.75	12
3.2 Weather Forecasting - Types of Weather forecast and their uses		

3.3 Climate change		
3.4 Global warming - Causes of climate change and its impact on		
regional and national agriculture		
Unit IV :		
4.1 Agro climatic zones of India	0.75	12
4.2 Effect of climatic factors on crop growth		

D) Reference Materials		
D1) Text Books for Reading		
1.	Principles of Agronomy by S. R. Reddy.	
2.	Principles of Agronomy by Reddy & Reddy.	
3.	Agrometeorology Reddy, S. R. and Reddy, D. S. 2014 Publisher: Kalyani	
	Publishers New Delhi.	
4.	Comprehensive Agrometeorology Mahi, G. S. and Kingra, P. K.	
	D2) Books for Reference	
1.	Radha Krishna Murthy, V. 2016. Principles and Practices of agricultural	
	disaster management, B. S. Publications, Koti, Hyderabad.	
2.	Reddy, S. R. 2014. Introduction to Agriculture and Agrometeorology. Kalyani	
	Publishers, Ludhiana, Punjab	
3.	Radha Krishna Murthy, V. 2002. Basic Principles of Agricultural meteorology,	
	B. S. Publications, Koti, Hyderabad.	

E) Suggested methods of Teaching:		
i)	Online teaching/ Offline	
ii)	Power point presentation	
iii)	Group discussion	
iv)	Field visit	

	F) Course Outcomes:	Blooms Taxonomy
CO1	Students will be able to know the impact of weather	
	and climate on agricultural production system	
CO2		
CO3		
CO4		

G) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	Total Marks	50

H) Suggested techniques for Continuous Internal Evaluation (10 Marks)		
1.	Home assignments	
2.		
3.		
4.		
5.	Total Marks	10

I) Question Paper Pattern (40 Marks)		
Q. No.	Nature / Type of Question	Marks
1.	MCQ	10
2.	Short Answer	10
3.	Short Note	10
4.	Long Answer	10
5.	Total Marks	40

Shri Acharyaratna Deshbhooshan Shikshan Prasarak Mandal, Kolhapur Mahavir Mahavidyalaya, Kolhapur (Autonomous) Affiliated to Shivaji University, Kolhapur



Syllabus for Choice Based Credit System (CBCS) Bachelor of Vocation (B. Voc.) Programme

Programme	Bachelor of Vocation in Agriculture
Part	I
Semester	II
Course Code	BV D 23
Course Name	
Course Title	
Paper No.	

A) Primary Information:				
Programme	Bachelor of Vocation (B. Voc.) Agriculture CBCS			
Part	I Semester II			
Course	Pomology	Course Code	BV D 13	
Paper No.		Course Type	Semester	
Total Marks	50 Marks	Implementation	2021 – 22	
Total Credits	03	Contact Hours	04/Week	
Course Title				

B) Course Objectives:		
i)	To understand orchard management	
ii)	To increase production and productivity of fruit crops by different propagating	
	method	
iii)	To study the special horticultural practices	
iv)	Knowledge of different fruit crops	

C) Course Syllabi:			
(CR = Credits / IH: Instructional Hours)			
Units	CR	IH	
Unit I :			
1.1 Importance and scope of fruits and plantation crops in			
Maharashtra and India	0.75	12	
1.2 Nutritional importance of fruits in human health			
1.3 Present Scenario			
Unit II :			
2.1 Production technologies for cultivation of major fruit- Mango,		12	
Banana	0.75		
2.2 Citrus crops	0.75		
2.3 Grape, Guava			
2.4 Papaya, Sapota, Pomegranate			
Unit III :		12	
3.1 Production technologies for cultivation of dry land fruit - Ber			
3.2 Custard apple			
3.3 Aonla			
3.4 Tamarind			
Unit IV :			
4.1 Special horticultural fruits - Strawberry		12	
4.2 Dragon fruit,			
4.3 Plantation crops – Coconut,			
4.4 Cashew			

D) Reference Materials			
	D1) Text Books for Reading		
1.	Handbook of Horticulture (2002) Chadha, K.L. ICAR, New Delhi		
2.	A handbook of Fruit Science and Technology (2013). D. K. Salunkhe and S. S.		
	Kadam CRC Press		
3.	Fundamentals of Horticulture 2014 Kausal Kumar Misra and Rajesh Kumar		
	Biotech Books		
4.	A handbook of Fruit Production (2010) S. Prasad and U. Kuma Agrobios		
	(India)		
	D2) Books for Reference		
1.	Principle of Horticulture and Fruit growing - Kunte and Yawalkar		
2.	Hartman, HT. and Kester, DE. 1986. Plant propagation - Principles and		
	Pratices. Prentice - Hall, New Delhi		
3.	Chadha, K.L. 2003. Handbook of Horticulture, ICAR, New Delhi. Choudhary,		
	B. 1983. Vegetable National Trust, New Delhi.		

	E) Suggested methods of Teaching:	
i)	Online teaching / Offline	
ii)	Power point presentation	
iii)	Group discussion	
iv)	Field visit	

	Blooms Taxonomy	
CO1	Students will be able to identify plant vegetative structure	
CO2	The student will be able to understand different branches of horticulture	
CO3	Students will understand how to propagate plant, manage and harvest a variety of plant.	
CO4	Students will learn how horticulture relates to the economy and environments, both currently and in the future	

G) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	Total Marks	50

H) Suggested techniques for Continuous Internal Evaluation (10 Marks)			
1.	Home assignments		
2.			
3.			
4.			
5.	Total Marks	10	

I) Question Paper Pattern (40 Marks)			
Q. No.	Nature / Type of Question	Marks	
1.	MCQ	10	
2.	Short Answer	10	
3.	Short Note	10	
4.	Long Answer	10	
5.	Total Marks	40	

Shri Acharyaratna Deshbhooshan Shikshan Prasarak Mandal, Kolhapur Mahavir Mahavidyalaya, Kolhapur (Autonomous) Affiliated to Shivaji University, Kolhapur



Syllabus for Choice Based Credit System (CBCS) Bachelor of Vocation (B. Voc.) Programme

Programme	Bachelor of Vocation in Agriculture
Part	I
Semester	II
Course Code	BV D 21
Course Name	
Course Title	
Paper No.	

A) Primary Information:				
Programme	Bachelor of Vocation (B. Voc.) Agriculture CBCS			
Part	I Semester II			
Course	Soil Science II	Course Code	BV D 21	
			(Practical)	
Paper No.		Course Type	Semester	
Total Marks	50 Marks	Implementation	2021 – 22	
Total Credits	05	Contact Hours	06/ Week	
Course Title				

	B) Course Objectives:	
i)	To study the manures and fertilizers	
ii)	To study the soil fertility and productivity	
iii)	To study the how to improve soil fertility	
iv)	To study the how to maintain soil PH	

C) Course Syllabi:		
(CR = Credits / IH: Instructional Hours)		
Practical	CR	IH
1.Introduction of analytical instruments and their principals		
2. Principle and application of colorimetric and flame		
photometer		
3.Identification of manure		
4.Identification of fertilizer		
5.Estimation of soil organic carbon		75
6.Estimation of available N in soils		
7.Estimation of available P in soils		
8.Determination of available K in soil using flame photometer		
9.Compatibility of fertilizer mixture		
10.Determination of moisture from organic manure		
11.Determination of organic matter from compost, FYM, oilcake		
12.Lime/ Gypsum requirement of problematic soil		
13.Visit to fertilizer mixture unit		
14.Visit to soil testing laboratory		

D) Reference Materials	
D1) Text Books for Reading	
1.	Introductory Soil Science by D.K. Das.
2.	Fundamentals of Soil Science by Indian Society of Soil Science
3.	Textbook of Soil Science by T. Biswas, S. Mukherjee
4.	Concept of Soil Science book by S. G. Rajput
	D2) Books for Reference
1.	A text book of Soil Science – Indian Society of Soil Science
2.	Physical properties of soil by C. C. Shah and N. K. Narayan (1966)
3.	Fundamentals of Soil Science (8th edition) 1990 by Henry. D. Fothk.

E) Suggested methods of Teaching:	
i)	Online teaching/ Offline
ii)	Power point presentation
iii)	Group discussion
iv)	Field visit

	F) Course Outcomes:	Blooms Taxonomy
CO1	Student can know about soil analytical Instruments	
CO2	Students will be able to identify soil fertility	
CO3	Knowledge about special Soil management practice	
CO4	Students will understand how to maintain soil PH	

	G) Scheme of Course Evaluation	n
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	Total Marks	50

	I) Question Paper Pattern (40 N	/larks)
Q. No.	Nature / Type of Question	Marks
1.	Practical (Lab work)	25
2.	Submission Practical record book and project report	15
3.	Viva-voce	10
4.		
5.	Total Marks	50

Shri Acharyaratna Deshbhooshan Shikshan Prasarak Mandal, Kolhapur Mahavir Mahavidyalaya, Kolhapur (Autonomous) Affiliated to Shivaji University, Kolhapur



Syllabus for Choice Based Credit System (CBCS) Bachelor of Vocation (B. Voc.) Programme

Programme	Bachelor of Vocation in Agriculture
Part	I
Semester	II
Course Code	BV D 22
Course Name	
Course Title	
Paper No.	

A) Primary Information:			
Programme	Bachelor of V	ocation (B. Voc.) Ag	riculture CBCS
Part	Ι	Semester	II
Course	Agricultural	Course Code	BV D 22
	Metrology		(Practical)
Paper No.		Course Type	Semester
Total Marks	50 Marks	Implementation	2021 – 22
Total Credits	05	Contact Hours	06/Week
Course Title			

B) Course Objectives:	
i)	To acquire the basic knowledge of climate and weather
ii)	To study the impact of climate and weather on agriculture
iii)	To study the crop weather relationship
iv)	To create awareness about agricultural metrology and their importance.

C) Course Syllabi:				
	(CR = Credits / IH: Instructional Hours)			
	Practical	CR	IH	
1. Study	y of meteorological instruments and methods of			
recor	ding observations			
2. Meas	urement of Bright sunshine hours, total shortwave and			
long	wave radiation			
3. Deter	mination of vapour pressure and relative humidity			
4. Meas	urement of rainfall with the help of rainguages	F	75	
5. Anal	ysis of rainfall data for climatological studies	5	75	
6. Meas	6. Measurement of atmospheric pressure			
7. Estimation of heat indices				
8. Meas	urement of evaporation by open pan evaporator			
9. Meas	urement of evapotranspiration by lysimeter			
10. Visit	of agro meteorological observatory			
	D) Reference Materials			
	D1) Text Books for Reading			
1.	Principles of Agronomy by S. R. Reddy.			
2.	Principles of Agronomy by Reddy & Reddy.			
3.	Weed Science: Basic and Applications by T. K. Das.			
4.	Textbook of Field Crops Production by Rajendra Prasad.			
	D2) Books for Reference			
1.	ICAR.2006. Handbook of Agriculture, ICAR, New Delhi.			

2.	Balasubramaniyan, P and Palaniappan, S. P. 2001. Principle and Practices of
	Agronomy AgroBios (India) Ltd. Jodhpur
3.	Scientific weed management - Gupta, O.P. 1984. Today and Tomorrow
	publishers, New Delhi

E) Suggested methods of Teaching:		
i)	Online teaching/ Offline	
ii)	Power point presentation	
iii)	Group discussion	
iv)	Field visit	

F) Course Outcomes:		Blooms Taxonomy
CO1	Student can know about Metrological Instruments.	
CO2	Student can know about Weather and climate	
	changes and effect on agricultural outcomes.	
CO3	Student can know the weather and climate situation	
	by basic knowledge.	
CO4	Students can know about how to develop weather	
	based agro advisories.	

G) Scheme of Course Evaluation		
1.	End Semester Examination (ESE)	40
2.	Continuous Internal Evaluation (CIE)	10
3.	Total Marks	50

I) Question Paper Pattern (40 Marks)			
Q. No.	Nature / Type of Question	Marks	
1.	Practical (Lab work)	25	
2.	Submission Practical record book and project report	15	
3.	Viva - Voce	10	
4.			
5.	Total Marks	50	

Shri Acharyaratna Deshbhooshan Shikshan Prasarak Mandal, Kolhapur Mahavir Mahavidyalaya, Kolhapur (Autonomous) Affiliated to Shivaji University, Kolhapur



Syllabus for Choice Based Credit System (CBCS) Bachelor of Vocation (B. Voc.) Programme

Programme	Bachelor of Vocation in Agriculture
Part	I
Semester	II
Course Code	BV D 23
Course Name	
Course Title	
Paper No.	

A) Primary Information:			
Programme	Bachelor of V	ocation (B. Voc.) Ag	riculture CBCS
Part	I Semester II		
Course	Pomology	Course Code	BV D 23
			(Practical)
Paper No.		Course Type	Semester
Total Marks	50 Marks	Implementation	2021 - 22
Total Credits	03	Contact Hours	04/Week
Course Title	Course Title		

B) Course Objectives:		
i)	To understand orchard management	
ii)	To increase production and productivity of fruit crops by different propagating	
	method	
iii)	To study the special horticultural practices	
iv)	Knowledge of different fruit crops	

C) Co	ourse Syllabi:		
(CR = Credits / IH: Instructional Hours)			
	Practical's	CR	IH
1. Ide	entification of fruit crop		
2. Pla	Int propagation by seeds		
3. Pro	ppagation methods for fruit and plantation crops		
4. Lay	yout and planting of fruit crops		
5. Tra	aining and pruning of fruit crops		
6. Pre	eparation and application of bio regulators in horticultural	5	75
cro	ops		
7. Me	ethods of irrigation		
8. Methods of manuring and fertilizer application			
9. Method of harvesting- Manual, Mechanical, Chemical			
10. Vis	sit to commercial nurseries		
	D) Reference Materials		
	D1) Text Books for Reading		
1.	Handbook of Horticulture (2002) Chadha, K.L. ICAR, New I	Delhi	
2.	A handbook of Fruit Science and Technology (2013). D. K. S	alunkhe ar	ıd S. S.
	Kadam CRC Press		
3.	Fundamentals of Horticulture 2014 Kausal Kumar Misra and	l Rajesh Ku	ımar
	Biotech Books		
4.	A handbook of Fruit Production (2010) S. Prasad and U. Kun	na Agrobic	os (India)

D2) Books for Reference		
1.	Principle of Horticulture and Fruit growing - Kunte and Yawalkar	
2.	Hartman, HT. and Kester, DE. 1986. Plant propagation - Principles and	
	Pratices. Prentice - Hall, New Delhi	
3.	Chadha, K.L. 2003. Handbook of Horticulture, ICAR, New Delhi. Choudhary,	
	B. 1983. Vegetable National Trust, New Delhi.	
	E) Suggested methods of Teaching:	
i)	Online teaching/ Offline	
ii)	Power point presentation	
iii)	Group discussion	
iv)	Field visit	

	F) Course Outcomes:	Blooms Taxonomy
CO1	Students will be able to identify plant vegetative	
	structure	
CO2	The student will be able to understand method of	
	manuring and fertilizer application	
CO3	Students will understand how to propagate plant,	
	manage and harvest a variety of plant	
CO4	Students will learn how horticulture relates to the	
	economy and environments, both currently and in	
	the future	

G) Scheme of Course Evaluation			
1.	End Semester Examination (ESE)	40	
2.	Continuous Internal Evaluation (CIE)	10	
3.	Total Marks	50	

I) Question Paper Pattern (40 Marks)			
Q. No.	Nature / Type of Question	Marks	
1.	Practical	25	
2.	Submission practical record book and project	15	
	report		
3.	Viva -voce	10	
4.			
5.	Total Marks	50	