

SHRI VISHWAKARMA SKILL UNIVERSITY
(State University enacted under the Government of Haryana Act 25, 2016)

B. Voc. Agriculture

with

Research: NSQF Level-6



Shri Vishwakarma Skill University
Dudhola, Palwal-121102, Haryana

Program Outcomes (POs)

- PO.1: To acquire knowledge on concepts of organic agriculture and understand the procedure of organic certification.
- PO.2: To expand breadth of knowledge and expertise in soil fertility and fertilizer management.
- PO.3: To understand the techniques of seed science and vegetable production.
- PO.4: To identify the pest and manage them through Integrated method.
- PO.5: To provide the sound knowledge of vermicompost production and Mushroom cultivation.
- PO.6: To provide hand hold exposure on agriculture -allied sectors like Diary, Apiculture, Aquaculture, etc.
- PO.7: To understand the techniques of Post-Harvest Management and Micro-irrigation system.
- PO.8: To understand mechanics of Agri entrepreneurship.
- PO.9: To develop the skills of innovations, Problem-Solving & Decision Making.
- PO.10: To work effectively in team and coordinate properly.

योगः कर्मसु कौशलम्

Programme Specific Objectives

- PSO1: Apply the knowledge of soil and crop management, crop cultivation and improvement for sustainable organic agricultural production and development.
- PSO2: Analysing and identifying complex agricultural problems and formulating ethical solutions using different advanced techniques of agriculture.
- PSO3: Developing innovative processes, products and technologies to meet the challenges of agriculture sector.

Program Design

The education program is a four-year curriculum that integrates on-the-job training (OJT) with classroom instruction. The program consists of eight semesters, with two semesters per year. The course will span over eight semesters, equipping students with ample information and skills to secure employment at different levels upon completion of each year of the course. The Programme will utilize the credit-based system to provide education. The constituents of the credit-based system will be as follows:

Disciplinary/Interdisciplinary Major Courses (D Major/ID Major): These courses enable a student to examine a specific profession comprehensively.

1. **Disciplinary/Interdisciplinary Minor Courses (D Minor/ID Minor):** These courses enable students to examine advanced courses in a different profession comprehensively.
2. **Multidisciplinary Courses (MDC):** MDC, or Multidisciplinary Courses, will contribute to the liberal arts and science curriculum by broadening the intellectual experience. In the proposed stream under this category, students are not allowed to select or retake courses they have already completed at the higher secondary level (12th class).
3. **Ability Enhancement Courses (AEC):** These courses allow students to gain fundamental linguistic abilities, critical reading, and academic writing skills. They also focus on improving communication skills and actively engaging in discussions and debates.
4. **Skill Enhancement Course (SEC):** SEC, or Skills Enhancement Courses, are designed to offer practical instruction, expertise, and proficiency in various fields to students.
5. **Value Addition Course (VAC):** These courses focus on instilling ethical, cultural, and constitutional values, fostering critical thinking, promoting Indian Knowledge Systems, cultivating a scientific temperament, enhancing communication skills, encouraging creative writing, improving presentation skills, emphasizing sports and physical education, and fostering teamwork. The aim is to facilitate the holistic development of students.

Project work/Dissertation: Project or dissertation work will carry four credits after two years and 12 credits during the 4th year. A project or dissertation may be assigned instead of a discipline-specific optional course. These courses allow students to apply knowledge to solve, analyze, or explore real-life situations or challenging problems.



**Details of B. VOC. Agriculture
Semester I**

Subject Code	Subjects	Credits			Hours			Theory(Marks)			Practical Marks			Total
		Th	P	To	Th	P	To	I	E	To	I	E	To	
24/U/AGR/01	Major 1: Fundamentals of mushroom cultivation	3	1	4	45	30	75	30	70	100	35	15	50	150
24/U/AGR/02	Minor 1: Fundamentals of agronomy and farming systems	3	1	4	45	30	75	30	70	100	35	15	50	150
24/U/AGR/03	Minor 2 : Soil health and nutrient management	2	2	4	30	60	90	30	70	100	35	15	50	150
AGB-21102	Multidisc 1: Fundamentals of computer	2	1	3	30	30	60	30	70	100	35	15	50	150
24DYHS01	Value Added 1: Yoga and Health Skills	1	1	2	15	30	45	30	70	100	35	15	50	150
24DENG01	AEC1: English Language and Communication Skills	1	1	2	15	30	45	30	70	100	35	15	50	150
	Total	12	7	19	180	210	390	180	420	600	210	90	300	900

योगः कर्मसु कौशलम्

SVSU

Semester II

Subject Code	Subjects	Credits			Hours			Theory(Marks)			Practical Marks			Total
		Th	P	To	Th	P	To	I	E	To	I	E	To	
24/U/AGR/04	Major 2: Mushroom grower (Entrepreneur)	2	2	4	30	60	90	30	70	100	35	15	50	150
24/U/AGR/05	Major 3: Post harvest processing, storage and marketing of mushroom	2	2	4	30	60	90	30	70	100	35	15	50	150
24/U/AGR/06	Major 4. Organic farming and agricultural meteorology	3	1	4	45	30	75	30	70	100	35	15	50	150
24/U/AGR/07	Major 5: Principles and methods of developing crop varieties	3	1	4	45	30	75	30	70	100	35	15	50	150
24UEVS01	Value Added 2: Environmental S	1	1	2	15	30	45	30	70	100	35	15	50	150
24UENG 04	AEC 2: Employability Skill	1	1	2	15	30	45	30	70	100	35	15	50	150
	Total	12	8	20	180	240	420	180	420	600	210	90	300	900

Syllabus

SEMESTER 1

Subject: Fundamentals of Mushroom Cultivation

Subject Code: 24/U/AGR/01

Credits: 3 +1

Max. Marks: 100 (30I+70E); 50(35I+15E)

Course objective: To acquaint the students about the characteristics of mushroom and its importance.

Learning Outcome:

LO1: Gain knowledge about the mushroom and its importance.

LO1: Understand the techniques of mushroom production.

LO3: Able to grow organic mushrooms.

LO4: Analyse the mushroom marketing strategies.

Unit-I

Introduction, History of mushroom cultivation, Current overview of mushroom production in the world, Mushroom biology-classification of mushrooms, Difference between edible and poisonous mushroom.

Unit-II

Infrastructure: structural design and layout of mushroom farm, substrates (locally available), Cultivation technology: overview of cultivation strategies, composting technology in mushroom production, mushroom bed preparation, culture media, Preparation of pure culture, maintenance and their preservation.

Unit-III

Production of spawn- cultivation of oyster mushroom, paddy-straw mushroom, milky mushroom and white button mushroom; Mushroom based Industry; Organic cultivation of mushroom.

Unit-IV

Research centres- National level and regional level, Cost-benefit ratio, Nutritional and medicinal value of edible mushrooms, Cultivation of medicinal mushroom; Mushroom market in India and abroad.

PRACTICALS

1. Identification of mushrooms: Poisonous and Edible mushroom
2. Preparation of nucleus culture of mushroom.
3. Prepare pure culture and their maintenance
4. Methods of Spawn production
5. Students' visit at mushroom farm.

Suggested readings:

- J. N. Kapoor. 2016. Mushroom Cultivation. ICAR. New Delhi
- Dhar and Kaul. 2007. Biology And Cultivation Of Edible Mushrooms. Westville Publishing House.
- Bhal, N. (2000). Handbook on Mushrooms. 2nd Ed. Vol. I and II. Oxford and IBH Publishing Co. Pvt. Ltd., New Delhi.

Subject: Fundamentals of agronomy and farming systems

Subject Code: 24/U/AGR/02

Course Credit: 04 (3+1)

Max. Marks: 100 (30I+70E); 50(35I+15E)

Course objective: To acquaint the students about the fundamentals of farming systems, sustainable agriculture and various components of organic agriculture.

Learning Outcome:

LO1: Understand the concepts of agronomy and agriculture.

LO1: Know about the situation of agriculture in various agro-climatic zones of India.

LO3: Discuss the risks and uncertainties and ways to manage the same for better crop production.

Unit-I

Definition of agriculture - meaning and scope of agronomy. History and development of agriculture in ancient India – agriculture in civilization era. National and International Agricultural Research Institutes in India. Agro-climatic zones of India - soils, land use pattern, major sources of irrigation and ground water potential. Tillage and tilth - objectives of tillage - characteristics of ideal seed bed - effect of tillage on soil properties - pore space, texture, structure, bulk density and colour of the soil.

Unit-II

Weeds and their management; Effect of weed on crop production; Irrigation management – importance, objectives, method of irrigation, drainage and its advantages; Cropping systems- Definition and principles of crop rotation monocropping, mixed cropping, intercropping, relay cropping, multi-storeyed cropping, sole cropping and sequence cropping; Harvesting of major agricultural crops - rice, maize, groundnut, sugarcane and pulses, maturity indices, method of harvesting, threshing and winnowing - harvest index.

Unit-III

Farming systems and systems approach; Determinants of farming system; cropping systems and related terminology; Study of allied enterprises - significance of integrating crop and

livestock, dairying and sheep and goat rearing, breeds, housing, feed and fodder requirements biogas plant; Study of allied enterprises - poultry farming, breeds, housing, feed and fodder requirements; Apiculture - species and management.

Unit-IV

Soil fertility - soil fertility and soil productivity; fertility losses; Maintenance of soil fertility; soil organic matter; Organic farming; Study of allied enterprises – sericulture, moriculture and silkworm rearing; Agro forestry systems suitable for dryland farming. Quality Seed.

PRACTICALS

6. Learn the methods involved in preparation of cropping pattern
7. Vermicompost production.
8. Soil Sampling
9. Preparation of cropping scheme to suit different irrigated and Garden land situations.
10. Preparation of farming systems to suit to dryland situation
11. Compost making
12. Preparation of enriched farmyard manure

Suggested readings:

- Arun, K. Sharma. 2006. A Hand Book of Organic Farming. Agrobios (India), Jodhpur.
- Dahama, A.K. 2007. Organic Farming for Sustainable Agriculture. Agrobios (India), Jodhpur.
- Dalela, R.C. and Mani, U.H. 1985. Assessment of Environmental Pollution. Academy of Environmental Biology, Muzaffarnagar.
- Deb, D.L. 1994. Natural Resources Management for Sustainable Agriculture and Environment. Angkor publishers Ltd., New Delhi.
- Purohit, S.S. 2006. Trends in Organic Farming in India. Agrobios (India), Jodhpur.
- Ruthenburg, H. 1971. Farming Systems in Tropics. Clarendon Press, London.

Subject: Soil health and nutrient management

Subject Code: 24/U/AGR/03

Course credit: 04 (2+2)

Max. Marks: 100 (30I+70E); 50(35I+15E)

Course Objectives: To acquaint the students about the characteristics of soil, its health and Nutrient Management.

Learning Outcomes:

- Understand the soil Health and soil Quality.
- Know about soil organic matter and their impact on soil properties.
- Gain the knowledge of bulky and Concentrated manures
- Able to perform soil sampling and testing

Theory:

UNIT-1

Soil formation; Soil health and their Characteristics, Soil properties- Physical, Chemical & Biological, Soil Quality, Soil profile; Soil sampling and testing; Soil as an inherent and dynamic properties.

.

UNIT-II

Soil quality indicators: physical, chemical and biological, Soil quality management; Soil organic matter; Fertilizer and pesticide management. Soil macro and micro element; Soil pH and Cation Exchange Capacity.

UNIT-III

Plant Nutrient - Macro and Micro nutrient, Nitrogen cycle, Nitrogen input, Soil organic matter, manures and other waste product, Bulky and Concentrated manures, Losses caused by Nitrogen, Volatilization, Leaching, Denitrification and immobilization.

Practical

- To visit organic farm
- To study about Bulky and Concentrated manures
- Compost
- Vermicompost
- Soil Sampling
- Soil testing
- Estimation of available Nitrogen
- Principles of Flame photometer

Recommended reading:

- Singaravel, R. and Angayarkanni, A. 2001. Soil Fertility Integrated Nutrient Management.
- Singh Rajindar, Devraj. 2019. Nutrient dynamics for sustainable crop production.
- Meena Ram Swaroop. 2020. Soil Health Restoration and Management.

SUBJECT: Fundamentals of computer

SUBJECT CODE: AGB-21102

Course credit: 03 (2+1)

Max. Marks: 100 (30I+70E); 50(35I+15E)

Course Objectives: Course is designed to impart knowledge and skills required to learn fundamentals of computers

Learning Outcomes:

- To understand basics of computer and working with Operating System.
- To know the concept of input and output devices
- To develop working skills with MS Office
- Enable to access internet technology.

Theory

UNIT-1

Introduction to Computer System: Basic Applications of Computer; Input Output Devices, Computer Memory, Concepts of Hardware and Software, Computer Virus: Definition, Types of viruses, Characteristics of viruses, Anti-virus software.

UNIT-II

Number System: Introduction to number system, Decimal to Binary and Vice Versa, Decimal to Octal and Vice Versa, Decimal to Hexa-Decimal and Vice Versa, ASCII Codes.

UNIT-III

Operating System: Overview of operating system: Definition, Functions of operating system, Need and its services, Types of operating system, Batch Processing, Multiprocessing, Multiprogramming, Time-Sharing, On-Line Processing, Real-Time Processing.

UNIT-IV

Understanding Office Applications: Introduction to MS Word, Introduction to MS Excel and its applications, Introduction to MS PowerPoint, Menus, Shortcuts, Document types, Formatting documents, spread sheet and presentations, Working with Spreadsheets, Different templates, Macros, Mail merge.

UNIT-V

Networking: Network Technologies, Introduction to Internet and protocol, Network connecting devices, Topologies, HTTP, HTTPS.

Practicals

1. Various Components of Computer
2. Internal And External DOS Commands
3. MS Word
4. MS Excel
5. MS Power Point
6. Introduction to Internet and protocol
7. Network connecting devices
8. Web Browser and E-mail
9. Topologies
10. HTTP, HTTPS

Recommended reading:

- Patt, Yale and Patel, Sanjay. 2019. Introduction to Computing Systems: From bits and gates to C & beyond. McGraw Hill.
- Elahi, Ata. 2017. Computer Systems, Digital Design, Fundamentals of Computer Architecture and Assembly Language. Springer.
- Norton, Peter. 2017. Introduction to Computers. McGraw Hill Education.
- Maluth, John Monyjok. 2016. Basic Computer Knowledge (Computer Basics Book 1). Zaccheus Entertainment.
- Ravichandran. A. 2014. Fundamentals of Information Technology. Khanna Book Publishing Company.
- Sinha, Priti and Sinha, Pradeep K. 2004. Computer Fundamentals. BPB Publications.

SUBJECT: Yoga and Health Skills (Value Added Course-1)

SUBJECT CODE: 24DYHS01

Course credit: 02 (2+0)

Max. Marks: 100 (30I+70E); 50(35I+15E)

Course Objective: Students will get information about the origin, history and development of Yoga along with different streams of yoga, literature and meditation.

Learning Outcome: After the completion of the course, the learners will be able to

1. To make aware of the definition, history and nature of yoga.
2. Telling information about different school of yoga.
3. Giving information about cleansing technique and yogic diet.
4. Explaining the importance of health.
5. Yogic management of various diseases and the utility of meditation.

Unit-I

Introduction to Yoga: Meaning and Definition of Yoga, Aim and Objectives of Yoga, Misconceptions of Yoga; Brief knowledge about Streams of Yoga-Ashtang and HathaYoga. Yogic Prayer Mantra. Importance of Yoga in modern era.

Unit-II

Yoga practices: Raja Yoga (AshtangaYoga), GyanYoga, Bhakti Yoga, Karma Yoga, Hatha Yoga.

Unit-III

Introduction to cleansing technique: Meaning, Definition, Objectives and Classification. Yogic diet: Diet, Yogic Diet, Anti-diet, Balanced diet.

Unit-IV

Health: Meaning, Definition, aim and objectives, Dincharya (Daily regimen): Meaning, definition and sequential elements, Application of Dincharya, Ritucharya (Seasonal Regimen): Meaning, Definition, Types with their salient features, Season wise Does and Don'ts.

Unit-V

Yogic management in health problems: cervical, back pain, diabetes and stress.

Meditation: Meaning, types, importance, general instructions and suggestions for meditation, physical, mental and spiritual effects of meditation.

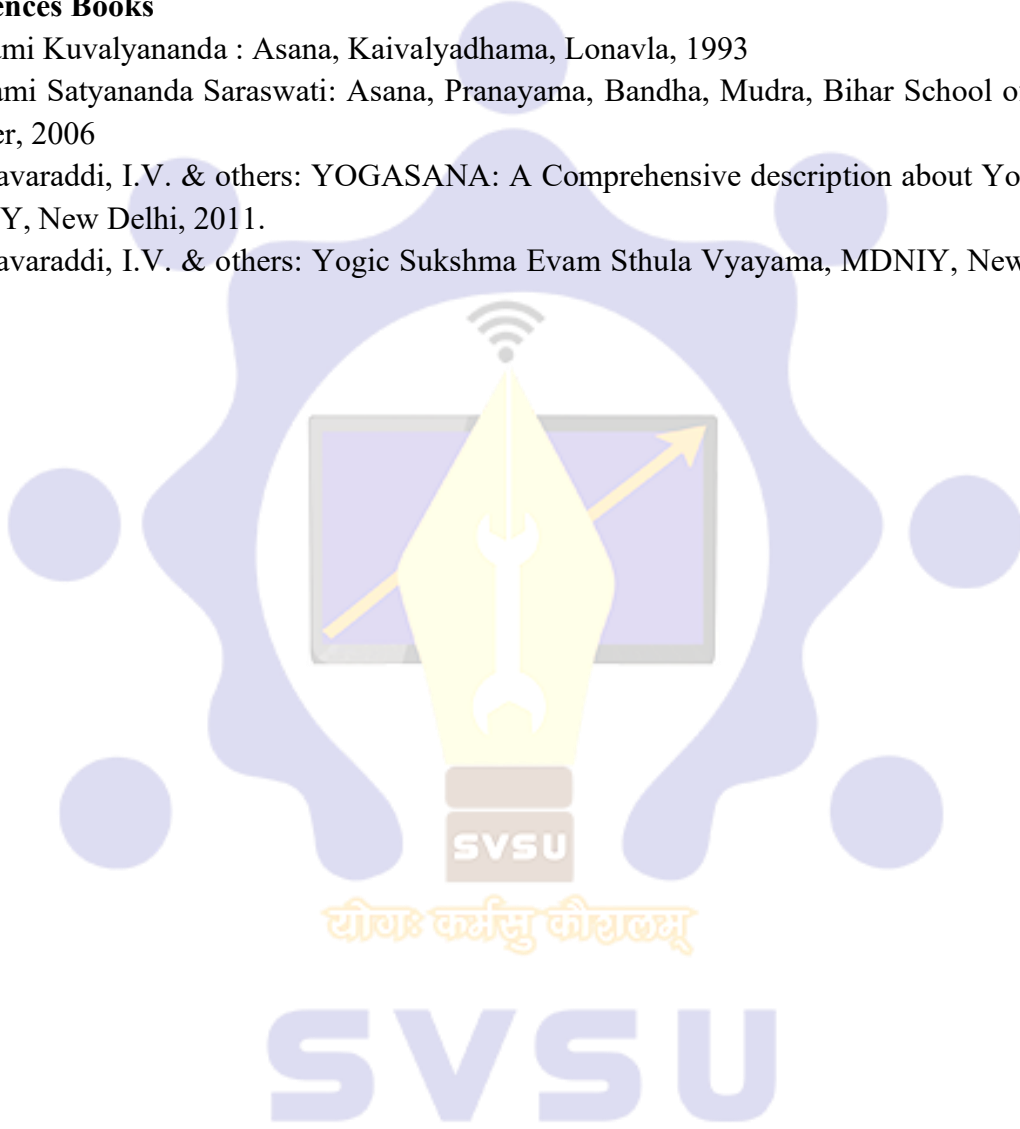
TEXT BOOKS

1. Yoga & yogic chikitsa - Singh Prof. Ramharsh ,Chaukhamba Sanskrit pratishthan, Edition 2011
2. Swami Vivekananda: Jnana Yoga, Bhakti Yoga, Karma Yoga, Raja Yoga, Advaita Ashrama, Calcutta, 2002.

3. Prof. Ramharsh Singh -SwashthavrittaVigyan, Chaukhambha Sanskrit Prakashan, Varanasi, 1998.
4. Sriram Sharma Acharya- JivemSharadahShatam, AkhandJyoti Mathura 1998.
5. Prof. Ramharsh Singh-Yogewam Yogic Chitksha, Chaukhambha Sanskrit Prakashan, Varanasi, 1998.
6. SwasthaVrittaVigyanewam Yogic Chiktsha- Dr. RakeshGiri, SikhshaBharti, Uttrakhand.

References Books

1. Swami Kuvalyananda : Asana, Kaivalyadhama, Lonavla, 1993
2. Swami Satyananda Saraswati: Asana, Pranayama, Bandha, Mudra, Bihar School of Yoga, Munger, 2006
3. Basavaraddi, I.V. & others: YOGASANA: A Comprehensive description about Yogasana, MDNIY, New Delhi, 2011.
4. Basavaraddi, I.V. & others: Yogic Sukshma Evam Sthula Vyayama, MDNIY, New Delhi, 2011.



SUBJECT: English Language and Communication Skills

SUBJECT CODE: 24DENG01

Course credit: 02 (1+1)

Max. Marks: 100 (30I+70E); 50(35I+15E)

Course Objectives:

To enhance the language and communication competence of learners with an emphasis on English for Specific Purposes (ESP) through communication skills related activities.

Learning Outcomes:

After this course, the learners will be able to:

LO1. Communicate effectively in diverse situations.

LO 2. Frame sentences for their professional and personal communication needs.

LO 3. Draft meticulous resumes, letters, minutes and presentations.

LO 4. Comprehend and understand intermediate level of passages and audios

Theory

UNIT 1: Communication Skills

Meaning, Process and Types of Communication; Principles of Effective Communication.

UNIT II: Grammar and Vocabulary

Use of Tenses, Articles, Prepositions, Conjunctions, Subject-verb concord, Word formation: Base, Prefixes, Suffixes Synonyms, Antonyms, One-word substitutes.

UNIT III: Listening Skills

Process and types of listening, deterrents to listening process, Essentials of good listening. Listening Comprehension and NoteTaking

UNIT IV: Writing Skills

Report writing, Agenda and Minutes; Letter Writing: Business letters, Cover letters, Electronic mail; Resume Writing.

UNIT V: Speaking Skills

Preparing for interviews- Types of interviews, Group discussion; Effective ways of performing well in interviews; Public Speaking.

Practical

1. Situational Conversations
2. Listening Skills
3. Resume Writing
4. Mock Interviews
5. Group Discussion
6. Presentation Skills
7. Negotiation Skills
8. Email Writing
9. Public Speaking

Recommended Readings:

- Joseph, C. J., Myall, E. G., and A. Biswas, eds. A Comprehensive Grammar of Current English. New Delhi: Inter University P, 2014.
- Lata, Pushp, and Sanjay Kumar. Communication Skills. 2 nd ed. New Delhi: OUP, 2019.
- Monippally, Matthukutty, M. Business Communication: From Principles to Practice. NewDelhi: McGraw Hill Pub., 2018.
- Mukerjee, H. S. Business Communication: Connecting at Workplace. New-Delhi: Oxford University Press, 2012.
- Murphy, H. A., Hildebrandt, H.W., and Thomas, J.P. Effective Business Communication. Boston: McGraw-Hill Companies, 1997.
- Ramesh, Gopaldaswamy, and Mahadevan Ramesh. The Ace of Soft Skills: Attitude, Communication and Etiquette for Success. Noida: Pearson, 2019.
- Sandra, M. O. Handbook of Corporate Communication and Strategic Public Relations: Pure and Applied. New Delhi: Routledge, 2004.
- Sinha, K. K. Taxmann's Business Communication. 4th Revised ed. New Delhi: Taxmann's Pub., 2018.
- Sinha, R. P. Current English and Usage with Composition. New Delhi: OUP, 2013.
- Taylor, Grant. English Conversation Practice. Indian ed. Chennai: McGraw Hill Education Pvt. Ltd., 2017.