

# **SGRR UNIVERSITY**

**Brochure of Value-Added Courses  
School of Agricultural Sciences  
2020-2021**

# ABOUT THE UNIVERSITY

Shri Guru Ram Rai University was established by a religious and philanthropic leader, Shri Mahant Devendra Dass Ji Maharaj in the year 2017. It is situated in the heart of city, Uttarakhand. We are extremely privileged to extend the values and ethos of the Shri Guru Ram Rai Education mission through SGRR University to impart quality education and in successfully placing more than 80% students in various companies across the globe. SGRR University has humongous campus spread over 80 acres of land. Its state-of-art facilities give opportunities to develop leadership skills and to achieve professional excellence. It has 7000+ students from different countries, 29 states and Union Territories and providing cultural melange and global exposure to our students. One of the biggest boosts from University is its unmatched experience of delivering quality education that helps to develop confidence and will give you more knowledge, industry exposure, building good networking and high self-esteem. This will change your overall personality and develop you into a complete professional to face any challenge.

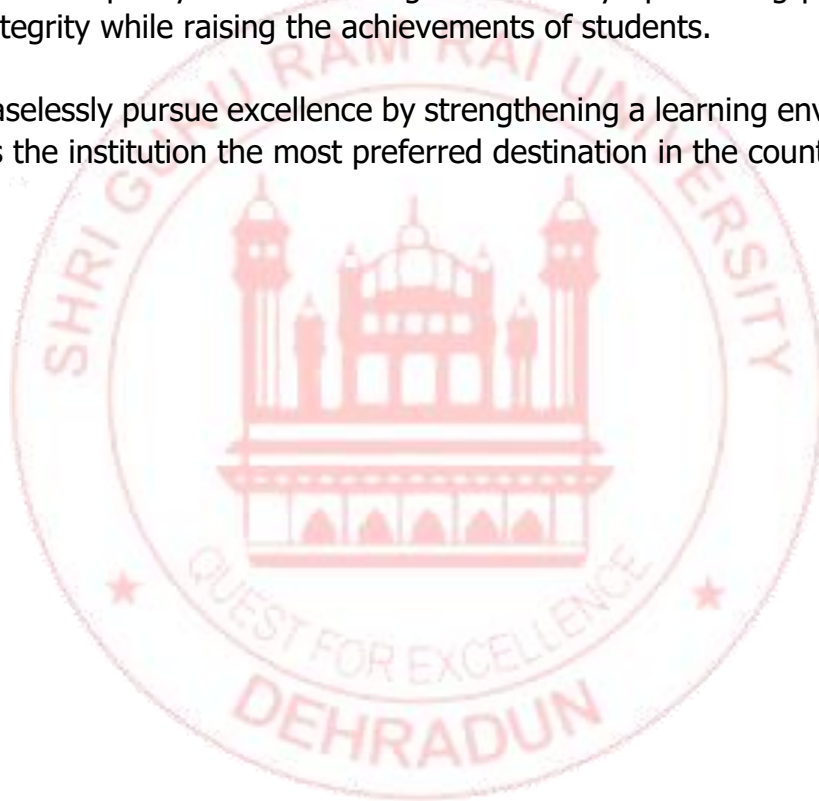
## Vision

“To establish Sri Guru Ram Rai University to be a Center of Excellence in higher education, innovation and social transformation by nurturing inquisitive and creative minds and by enabling the stakeholders to become committed professionals and educators of national and global relevance.”

## Mission

- ❖ To provide a comprehensive and sustainable educational experience that fosters the spirit of enquiry, scientific thinking and professional competence along with ethical and spiritual values
- ❖ To deliver a classic, well rounded learning experience that is distinctive and impactful on the young generation preparing them for a successful career
- ❖ To engage, inspire and challenge the stakeholders to become leaders with ethics and positive contributors to their chosen field and humane citizens
- ❖ To attract, train and retrain qualified staff to work efficiently to bring forth the maximum resource potential

- ❖ To develop committed and responsible professionals who work for the welfare of the society by providing innovative and efficient solutions and creating long term relationship with the stakeholders
- ❖ To create a sustainable career, by collaborating with stakeholders and participating in community partnership for life and livelihood in the local society in a responsive and dynamic way
- ❖ To make our students globally competent by introducing specialized training leading to professional capabilities and developing diverse skills in them for competitive advantage.
- ❖ To establish quality standards for generations by epitomising professionalism and integrity while raising the achievements of students.
- ❖ To ceaselessly pursue excellence by strengthening a learning environment that makes the institution the most preferred destination in the country.



## Index

S.No	Course Name	Course Code	Contact Hours	Year	Page NO.
1	Introduction	-	-	-	4-6
2	Production Technology of Trichogramma	VAC2020-13	30 Hours	2020	7
3	Bio fertilizer Production	VAC2020-14	30 Hours	2020	8-9
4	Ornamental Horticulture	VAC2020-15	30 Hours	2020	10-11
5	Medicinal Mushroom Cultivation	VAC2020-16	30 Hours	2020	12-13
6	Shivansh Farming	VAC2020-17	30 Hours	2020	14-15
7	Miniature Gardens-Gardening in Limited Space	VAC2020-18	30 Hours	2020	16-17



## INTRODUCTION

The ever-changing global scenario makes the world more modest and needs high levels of lateral thinking and the spirit of entrepreneurship to cope up with the emergent challenges. Many a times, the defined skill sets that are being imparted to students today with Programme Specific Objectives in educational institutions become redundant sooner or later due to rapid technological advancements. No university curriculum can adequately cover all areas of importance or relevance. It is important for higher education institutions to supplement the curriculum to make students better prepared to meet industry demands as well as develop their own interests and aptitudes.

### **Objectives The main objectives of the Value-Added Course are:**

- ✓ To provide students an understanding of the expectations of industry.
- ✓ To improve employability skills of students.
- ✓ To bridge the skill gaps and make students industry ready.
- ✓ To provide an opportunity to students to develop inter-disciplinary skills.
- ✓ To mould students as job providers rather than job seekers.

Course Designing The department interested in designing a Value Added Course should undertake Training Need Analysis, discuss with the generic employers, alumni and industrial experts to identify the gaps and emerging trends before designing the syllabus.

### **Conduction of value added courses :**

Value Added Course is not mandatory to qualify for any programme and the credits earned through the Value-Added Courses shall be over and above the total credit requirement prescribed in the curriculum for the award of the degree. It is a teacher assisted learning course open to all students without any additional fee.

Classes for a VAC are conducted during the RESERVED Time Slot in a week or beyond the regular class hours The value-added courses may be also conducted during weekends / vacation period. A student will be permitted to register only one Value Added Course in a Semester.

student will be encouraged to opt for the VAC offered by his/her parent Department/Faculty. Industry Experts / Eminent Academicians from other Institutes are eligible to offer the value-added course. The course can be offered only if there are at least 5 students opting for it. The students may be allowed to take value added courses offered by other departments after obtaining permission from Dean offering the course. The duration of value added course is 30 hours with a combination 18

hours (60%) of theory and 12 hours (40%) of practical. However, the combination of theory and practical shall be decided by the course teacher with the approval of the Dean

## **GUIDELINES FOR CONDUCTING VALUE ADDED COURSES**

- ❖ Value Added Course is not mandatory to qualify for any program.
- ❖ It is an instructor supported learning course open to all students without any added fee.
- ❖ Classes for VAC will be conducted during the **RESERVED** Time Slot in a week or beyond the regular class hours.
- ❖ The value-added courses may be also conducted during weekends / vacation period.
- ❖ A student will be permitted to register only one Value Added Course in a Semester.
- ❖ Students may be permitted to enrol in value-added courses offered by other departments/ Schools after obtaining permission from the Department's Head offering the course.

## **DURATION AND VENUE**

- ❖ The duration of value-added course should not be less than 30 hours.
- ❖ The Dean of the respective School shall provide class room/s based on the number of students/batches.
- ❖ VAC shall be conducted in the respective School itself.

## **REGISTRATION PROCEDURE**

The list of Value-Added Courses, along with the syllabus, will be available on the University Website. A student must register for a Value-Added Course offered during the semester by completing and submitting the registration form. The Department Head shall segregate according to the option chosen and send it to the Dean of the school offering the specific Value-Added Courses.

- ❖ Each faculty member in charge of a course is responsible for maintaining Attendance and Assessment Records for candidates who have registered for the course.
- ❖ The Record must include information about the students' attendance and Assignments, seminars, and other activities that were carried out.
- ❖ The record shall be signed by the Course Instructor and the Head of the Department at the end of the semester and kept in safe custody for future verification.
- ❖ Each student must have a minimum of 75% attendance in all courses for the semester in order to be eligible to take certificate.

- ❖ Attendance requirements may be relaxed by up to 10% for valid reasons such as illness, representing the University in extracurricular activities, and participation in NCC.
- ❖ The students who have successfully completed the Value Added Course shall be issued with a Certificate duly signed by the Authorized signatories.



## Production Technology of Trichogramma

Course Code: VAC2020-13

### Course Objectives:

- To impart the basic knowledge about various pests and their parasitoids.
- To develop understanding of the biology and various environmental factors.
- To develop the skills for the mass production of Trichogramma.
- To impart the knowledge of different integrated control methods.

### Course Outcome:

#### On Successful completion of course the student will be able to:

- Imparted the basic knowledge about various pests and their parasitoids.
- Developed understanding of the biology and various environmental factors.
- Developed the skills for the mass production of Trichogramma.
- Imparted the knowledge of different integrated control methods.

### Course content:

**Module I** (Total Topics-8 and Hrs.6) Definition & Importance of bio control agents, Basic Knowledge of insect pests and their natural enemies, Identification of various bio- control agents.

**Module II** (Total Topics- 6 and Hrs.8) Insect orders bearing predators and parasitoids used in biological control.

**Module III** (Total Topics-10 and Hrs.8) Scientific name, order, family, species, host range, biology and management of Trichogramma.

**Module IV** (Total Topics-8 and Hrs.8) Production techniques: Methods of rearing, equipments used, selection of different species and their management

### References:

- Pradyumn Kumar, Jaswinder Kaur, J.C. Sekhar, Soujanya PL. 2017. Mass Production of Biocontrol agents of insect Pests. In Book: Industrial Entomology, pp451-465
- Consoli, F.L., Parra, J.R., & Zucchi, R.A. (Eds.) (2010). Egg Parasitoids in agroecosystems with emphasis on Trichogramma. (Vol. 9). Springer Science & Business media.



## Bio fertilizer Production

Course Code: VAC2020-14

### Course Objectives:

- To impart the basic knowledge about various microbes, Biofertilizers, and their mass multiplication.
- To understand the functions of various biofertilizers and mode of action in different crops
- To develop the skills for the mass production of Biofertilizer.
- To impart the knowledge of different integrated control methods.

### Course Outcome :

#### On Successful completion of course the student will be able to:

- Acquainted with basic knowledge about the Biofertilizers.
- Understood the functions of various biofertilizers and mode of action in different crops.
- Developed the skills for the mass production of Biofertilizer.
- Imparted the knowledge of different integrated control methods.

### Course content:

**Module -I** (Total Topics-8 and Hrs.8) General account about the microbes used as biofertilizer: Rhizobium, Azospirillum, Bacillus, Pseudomonas, Azotobacter: classification, characteristics, crop response to Azotobacter, isolation, inoculum, maintenance, mass multiplication, carrier based inoculants and packaging.

**Module- II** (Total Topics-8 and Hrs.8) Cyanobacteria (blue green algae):Azolla and Anabaena azollae association, nitrogen fixation, factors affecting growth, blue green algae and Azolla in rice cultivation.

**Module-III** (Total Topics-10 and Hrs.8) Fungal biofertilizers: Mycorrhizal association, types of mycorrhizal association, taxonomy, occurrence and distribution, phosphorus nutrition, growth and yield, colonization of VAM, isolation and inoculum production of VAM, and its influence on growth and yield of crop plants.

**Module-IV** (Total Topics-10 and Hrs.6) Production technology: Strain selection, sterilization, growth and fermentation, mass production of carrier based and liquid

biofertilizers. Application technology for seeds, seedlings, tubers, sets etc. Biofertilizers -Storage, shelf life, and quality control. Factors influencing the efficacy of biofertilizers.

### References:

- Burges, H. D. 1981 .Microbial control of pests and plant diseases, Academic Press, NewYork, 949.
- Deshmukh, A.M.; Khobragade, R.M. and Dixit . 2007. Handbook of Biofertilizers and Biopesticides /edited , Oxford Book Company, xviii, 308 p., tables, figs., ISBN81-89473-15-0.
- Trivedi ,P,C .2008. Biofertilizers. Pointer Publications, New Delhi. P.374. (ISBN:9788171325429). λ Panda,H.2023.Biofertilizer and Organic Farming.NIIR Project Consultancy Services.P: 480.(ISBN: 9789381039076).
- Panda,H.2011.Manufacture of Biofertilizer and Organic Farming.National Institute of Industrial Research.(ISBN:978-8178331461).



# Ornamental Horticulture

Course Code: VAC2020-15

## Course Objectives:

1. To impart the knowledge about gardening and landscaping
2. To assist the various types of gardening in India.
3. To identify the various types of plants, tress, climbers etc.
4. To judge the maturity indices for various flowers

## Course Outcome (CO):

On Successful completion of course, the student will be able to:

- Imparted the knowledge about gardening and landscaping
- Assisted the various types of gardening in India.
- Identified the various types of plants, tress, climbers etc.
- judged the maturity indices for various flowers

**Module I** (Total Topics- 10 and Hrs. 8) History, scope of gardening aesthetic values. Gardens in India, types of gardens. Landscaping, historical background, definition. Floriculture industry: importance, area and production, industrial importance in India. Landscaping, basic principles and basic components.

**Module II** (Total Topics- 14 and Hrs. 10) Principles of gardening, garden components, adornments, lawn making, methods of designing rockery, water garden, etc. Special types of gardens, their walk-paths, bridges, constructed features. Greenhouse. Special types of gardens, trees, their design, values in landscaping, propagation, planting shrubs and herbaceous perennials. Importance, design values, propagation, plating, climbers and creepers, palms, ferns, grasses and cacti succulents.

**Module III** (Total Topics- 8 and Hrs. 6) Flower arrangement: importance, production details and cultural operations, constraints, postharvest practices. Bio-aesthetic planning, definition, need, round country planning, urban planning and planting avenues, schools, villages, beautifying railway stations, dam sites, hydroelectric stations, colonies, river banks, planting material for play grounds.

**Module IV** (Total Topics- 7 and Hrs. 6) Vertical gardens, roof gardens. Culture of bonsai, art of making bonsai. Parks and public gardens.

### **Suggested Readings:**

- Arora, J.S. Introductory Ornamental Horticulture. Kalyani Publishers, New Delhi. 2012.
- Bose, T.K. and D. Mukherjee. Gardening in India. Oxford and IBH Publication Co., Kolkata. 1977.
- Chadha, K.L. Ornamental Horticulture in India. ICAR. Krishi Bhavan, New Delhi. 1986.
- Gopalakrishnan, T.R. Vegetable Crops. Horticultural Science Series (Series Editor K.V.Peter). New India Publishing Agency, New Delhi. 2007.
- GoplasamyIyyankar. Complete Gardening in India. Kalyan Printers, Bangalore. 1970.



## Medicinal Mushroom Cultivation

Course Code: VAC2020-16

### Course Objectives:

1. To enable the trainees to identify and importance of medicinal mushroom.
2. To provide hands on training for the preparation of bed for medicinal mushroom cultivation, pest and disease control and harvesting and post harvesting management.
3. To provide awareness about the market trend of medicinal mushroom.
4. To give the exposure of experiences of experts in the field and to functioning in mushroom farm. To learn a mean of self-employment and high income generation by medicinal mushroom cultivation.

### Course Outcome (CO):

#### On Successful completion of course the student will be able to:

- Identified and understand the importance of medicinal mushroom.
- Understood how to Prepare the bed for medicinal, mushroom cultivation, pest and disease control and harvesting and post harvesting management.
- Acquainted with different market trend of medicinal of medicinal mushroom.
- Learned a mean of self-employment and high income generation by medicinal cultivation.

**Module I** Introduction – History of medicinal mushroom cultivation; *Ganoderma lucidum*, *Cordyceps sinensis*, *Hericum erinaceus*, , *Pleurotus ostreatus* (Oyster), *Morchella esculenta* (Yellow morel) and *Lentinula edodes* (Shiitake) . Classification and distribution of medicinal mushroom; life cycle of medicinal mushroom. Identification of medicinal mushrooms.

**Module- II** Spawn preparation - Isolation of pure culture; Nutrient media for pure culture; layout of spawn preparation room; raw material of spawn; sterilization; preparation of mother spawn and multiplication .

**Module- III** Cultivation of mushroom, layout of mushroom shed - small scale and large scale production unit. Types of raw material – preparation and sterilization; Mushroom bed preparation – maintenance of mushroom shed; harvesting method and preservation of mushrooms.

**Module- IV** Medicinal value of mushroom – cultivation, extraction, isolation and identification of active principle from mushroom. Pharmacological and economic values of mushroom. Nutrient values of mushroom – protein, carbohydrate, fat, fibre, vitamins and amino acids contents; short and long term storage of mushroom; preparation of various dishes from mushroom.

### Suggested readings:

- Agri. Information Service, Himachal Pradesh, Shimla. How to grow mushroom Bull. Agri. Inf serv. 1, 1972.
- AOAC Official Methods of Analysis of Association of Official Agricultural Chemists, 12th ed. Published by the Association , Washington,1975.
- College of Agri. Cultivation of tropical mushrooms;Bull. Tamilnadu Agri. University, Coimbatore, Tamilnadu, 1968.
- Paul Stamets, J.S. and Chilton, J.S. 2004. Mushroom cultivation A practical guide to growing mushrooms at home, Agarikon Press.



## Shivansh Farming

Course Code: VAC2020-17

### Course Objectives:

- To impart knowledge to students on various methods of agricultural waste management for eco- friendly energy and manure production.
- To develop understanding of some identified areas of organic farming.
- To develop skills at village level on organic management practices with special focus on soil health base crop management.
- To create job opportunities in organic sector particularly in the area of organic production.

### Course Outcome (CO):

#### On Successful completion of course the student will be able to:

- Imparted knowledge to students on various methods of agricultural waste management for eco-friendly.
- Developed understanding of some identified areas of organic farming.
- Developed skills at village level on organic management practices with special focus on soil health base crop management.
- Created job opportunities in organic sector particularly in the area of organic production.

### Module -I

Definition of Compost, Science of Composting, Classification of Composting, Role of microbes in composting, Importance of Composting.

### Module -II

Carbon- nitrogen Balance; Ideal C:N Ratio, Moisture content, Temperature and Oxygen availability

### Module-III

Manure preparation and introduction to compost. Methods of composting – Shivansh Composting -Factors involved, Infrastructure required, maturity parameters, value addition and application methods.

### Module- IV

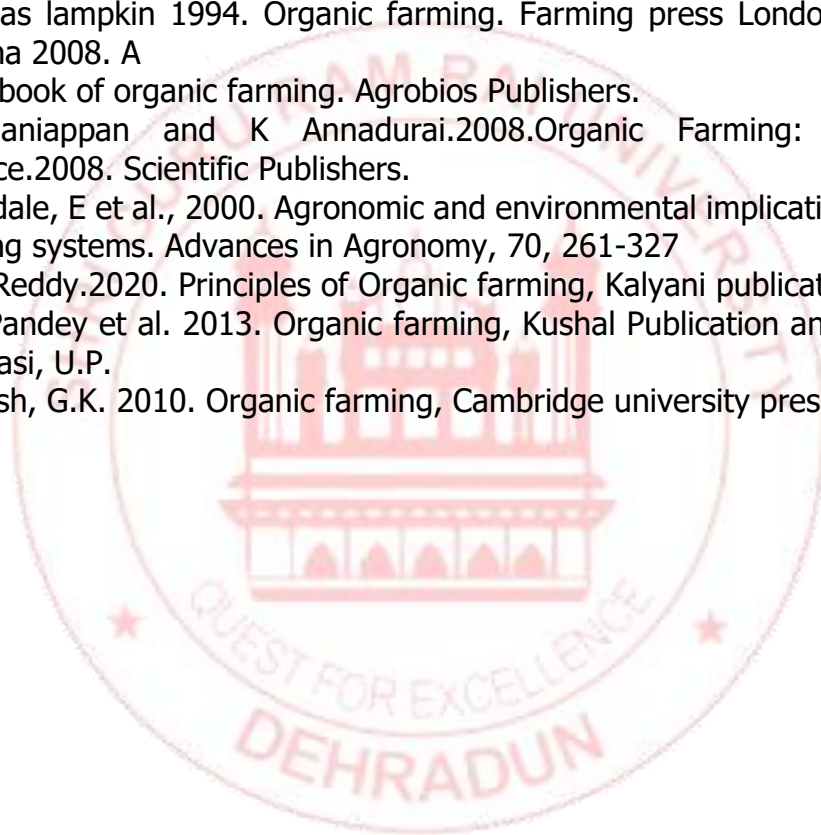
Crop management, Nutrient Management and Pest Management and Multilayer cropping system base farm planning.

## Module -V

System of organic certification and inspection. Standards and guidelines of NPOP (National Programme for organic production). Branding of rural products, FSSAI, marketing and packaging of organic produce.

### Suggested readings:

- Dahama, A.K.2009. Organic farming for sustainable agriculture, Agrobros publishers.
- Mukund Joshi. 2015. Sustainability to Organic Farming, Kalyani publication
- Nicholas lampkin 1994. Organic farming. Farming press London.Arun kumar Sharma 2008. A
- Hand book of organic farming. Agrobios Publishers.
- SP.Palaniappan and K Annadurai.2008.Organic Farming: Theory and Practice.2008. Scientific Publishers.
- Stockdale, E et al., 2000. Agronomic and environmental implications of organic farming systems. Advances in Agronomy, 70, 261-327
- S. R. Reddy.2020. Principles of Organic farming, Kalyani publication
- T.D. Pandey et al. 2013. Organic farming, Kushal Publication and distributors, Varanasi, U.P.
- Veeresh, G.K. 2010. Organic farming, Cambridge university press.





## Miniature Gardens- Gardening in Limited Space

Course Code: VAC2020-18

### Course Objectives:

1. To impart the basic knowledge about importance and scope of gardening
2. To develop understanding of role of gardening in horticulture.
3. It will enable students to learn various types of gardens.
4. It will help to know installation and maintenance of miniature gardens

### Course Outcome (CO):

#### On Successful completion of course the student will be able to:

- Imparted the basic knowledge about importance and scope of gardening.
- Developed understanding of role of gardening in horticulture.
- Understood various types of gardens.
- Helped to know installation and maintenance of miniature gardens.

**Module-I** (Total Topics-08 and Hrs.8) Scope and objectives of gardening and Style of gardens: Formal, Informal, gardening tools, potting soil, types of propagation. Principles and making of Terrarium and Kokedama.

**Module-II** (Total Topics-08 and Hrs.8) Concept of vertical gardens. Small area greening. Plants suitable for office space aesthetic value, break office monotony, air purifier.

**Module-III** (Total Topics-8 and Hrs.8) Importance of layout and principles in kitchen and balcony garden, composting and micro greens.

**Module-IV** (Total Topics-8 and Hrs.6) Gardening management operations: - soil laying, manuring, watering, management of pests and diseases with complete cure.

### Suggested Readings:

- Arora, J.S. 2006. Introductory Ornamental Horticulture. Kalyani Publishers, Ludhiana.
- Laurie, A. and Victor, H.R. 2001. Floriculture-: Fundamentals and Practices. Agorbios.
- Nambisan, K.M.P. 1992. Design Elements of Landscape Gardening. Oxford and IBH.

- Randhawa, G.S. and Mukhopadhyay, A. 2004. Floriculture in India. Allied Publishers Pvt. Ltd.
- Woodrow, M.G. 1999. Gardening in India. Biotech Books.
- Bose, T.K., Maiti, R.G., Dhua, R.S. and Das, P. 2012. Floriculture and Landscaping. Naya Prokash

