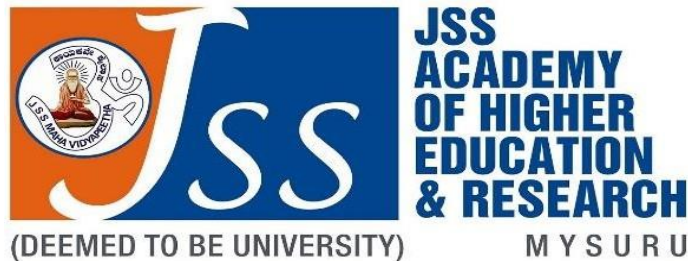




Education for



Sustainable Development Goals



JSS ACADEMY OF HIGHER EDUCATION & RESEARCH
Teaching & Learning of Activities in Achieving UN
Sustainable Development Goals

Teaching & Learning Objective Handbook
SDG-12- Responsible Consumption and
Production

2024

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PREFACE

The United Nations' 2030 Agenda for Sustainable Development was adopted Globally in September 2015. It is underpinned by 17 Sustainable Development Goals (SDGs) and 169 targets and applies to every country. It helps people from various countries to work together to promote sustained and inclusive economic growth, social development and environmental protection and to benefit all, including future generations. The 2030 Agenda for Sustainable Development sets forth “a plan of action for people, planet and prosperity ” and “seeks to strengthen universal peace in larger freedom”. This universal agenda requires an integrated approach to sustainable development and collective action, at all levels, to address the challenges of our time, with an overarching imperative of ‘leaving no one behind’ and addressing inequalities and discrimination as the central defining feature. Many countries , institutions and organisations have already started to translate the new agenda into their development plans, strategies and visions.

JSSAHER'S Social Responsibility is an approach of ethical and intelligent management, which involves both its impact on its human, social and natural context and its active role on the promotion of Sustainable Human Development of the country. Within this approach, “Sustainable Campus” is a strategy that strives to reduce the ecological footprint of the Institution via a rational use of resources and to educate the JSSAHER community on the ethics of sustainability.

Supporting the JSSAHER'S Social Responsibility, the SDG Hand Book explains the SDGs and their connection between the various goals and targets of JSSAHER . It provides a blueprint to help, identify, implement and achieve the Sustainable Development Goals (SDGs) at JSS AHER.

As the process moves towards implementation, there is a need to address the scope and systemic nature of the 2030 Agenda and the urgency of the challenges. This requires a wide range of tools and science-based analysis to navigate that complexity and to realise the ambition. JSSAHER having in place effective governance systems, institutions, partnerships, and intellectual and financial resources favouring effective, efficient and coherent approach for implementation of SDGs.

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<https://www.jssuni.edu.in/JSSWeb/WebShowFromDB.aspx?MID=11011&CID=0&PID=10001>

PREAMBLE



Education for

Sustainable Development Goals

By 2030, ensure that all learners acquire knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development.

Source: [The Sustainable Development Goals Report 2022](#)

<http://www.un.org/sustainabledevelopment/sustainable-development-goals>

[Access to Learning objectives for SDG-12](#)

[Education for Sustainable Development Goals: learning objectives - UNESCO Digital Library](#)

[United Nations, n.d.](#)

OBJECTIVE OF JSS ACADEMY OF HIGHER EDUCATION & RESEARCH TO PROMOTE EDUCATION FOR SUSTAINABLE DEVELOPMENT GOALS OF THE UNITED NATION IS TO MATCH THE TEACHING & LEARNING ACTIVITIES WITH SUSTAINABLE DEVELOPMENT GOALS THROUGH CURRICULUM DEVELOPMENT, ENHANCED RESEARCH AND EXTENDED OUTREACH ACTIVITIES.

INTRODUCTION

The Sustainable Development Goals – an ambitious and universal agenda to transform our world

On 25 September 2015, the UN General Assembly adopted the 2030 Agenda for Sustainable Development (UN, 2015). This new global framework to redirect humanity towards a sustainable path was developed following the United Nations Conference on Sustainable Development (Rio+20) in Rio de Janeiro, Brazil in June 2012, in a three-year process involving UN Member States, national surveys engaging millions of people and thousands of actors from all over the world.

At the core of the 2030 Agenda are 17 Sustainable Development Goals (SDGs). The universal, transformational and inclusive SDGs describe major development challenges for humanity. The aim of the 17 SDGs is to secure a sustainable, peaceful, prosperous, and equitable life on earth for everyone now and in the future. The goals cover global challenges that are crucial for the survival of humanity. They set environmental limits and set critical thresholds for the use of natural resources. The goals recognize that ending poverty must go together with strategies that build economic development. They address a range of social needs including education, health, social protection, and job opportunities while tackling climate change and environmental protection. The SDGs address key systemic barriers to sustainable development such as inequality, unsustainable consumption patterns, weak institutional capacity, and environmental degradation.

For the goals to be reached, everyone needs to do their part: governments, the private sector, civil society and every human being across the world. Governments are expected to take ownership and establish national frameworks, policies, and measures for the implementation of the 2030 Agenda.

A key feature of the 2030 Agenda for Sustainable Development is its universality and indivisibility. It addresses all countries – from the Global South and the Global North – as target countries. All countries subscribing to the 2030 Agenda are to align their own development efforts with the aim of promoting prosperity while protecting the planet to achieve sustainable development. Thus, with respect to the SDGs, all countries can be considered as developing and all countries need to take urgent action.

The 17 Sustainable Development Goals (SDGs)

No Poverty – End poverty in all its forms everywhere

Zero Hunger – End hunger, achieve food security and improved nutrition and promote sustainable agriculture

Good Health and Well-Being – Ensure healthy lives and promote well-being for all at all ages

Quality Education – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all

Gender Equality – Achieve gender equality and empower all women and girls

Clean Water and Sanitation – Ensure availability and sustainable management of water and sanitation for all

Affordable and Clean Energy – Ensure access to affordable, reliable, sustainable, and clean energy for all

Decent Work and Economic Growth – Promote sustained, inclusive, and sustainable economic growth, full and productive employment and decent work for all

Industry, Innovation and Infrastructure – Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

Reduced Inequalities – Reduce inequality within and among countries

Sustainable Cities and Communities – Make cities and human settlements inclusive, safe, resilient and sustainable

Responsible Consumption and Production – Ensure sustainable consumption and production patterns

Climate Action – Take urgent action to combat climate change and its impacts

Life below Water – Conserve and sustainably use the oceans, seas and marine resources for sustainable development

Life on Land – Protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification, and halt and reverse land degradation and halt biodiversity loss

Peace, Justice and Strong Institutions – Promote peaceful and inclusive societies for sustainable development, provide access to justice for all and build effective, accountable and inclusive institutions at all levels

Partnerships for the Goals – Strengthen the means of implementation and revitalize the global partnership for sustainable development

Source: <http://www.un.org/sustainabledevelopment/sustainable-development-goals>





TEACHING & LEARNING OBJECTIVES FOR SDG 12 JSS MEDICAL COLLEGE & HOSPITAL

SDG 12 - Responsible Consumption and Production



Ensure sustainable consumption and production patterns

Teaching & Learning objectives for SDG 12 “Responsible Consumption and Production”

Subject/ topic/ course in regular curriculum relating to SDG 12	Physiology, Biochemistry, Community Medicine, General Medicine
Cognitive Teaching & learning objectives	<p>At the end of first year the learner should be able to</p> <ul style="list-style-type: none"> • Describe the processes involved in maintenance of normal pH, water & electrolyte balance of body fluids and the derangements associated with these. • Describe and discuss the digestion and assimilation of carbohydrates from food. • Summarize the nutritional importance of commonly used items of food including fruits and vegetables. (macro-molecules & its importance) • Enumerate advantages and/or disadvantages of use of unsaturated, saturated and trans fats in food. • Explains the Calorific value of common Indian foods. <p>At the end of 3rd year, part 1, the learner should be able to</p>

	<ul style="list-style-type: none"> • Describe the aetiology and basis of water borne diseases/ jaundice/hepatitis/ diarrheal diseases • Describe the health hazards of water pollution • Describe concepts of safe and wholesome water, sanitary sources of water, water purification processes, water quality standards, concepts of water conservation and rainwater harvesting. • Describe food hygiene • Describe occupational and environmental pesticides, food adulterants, pollutants and insect repellents. • Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis. • Summarize the nutritional importance of commonly used items of food including fruits and vegetables (macro-molecules & its importance). • Describe and discuss the impact of environmental factors including eating habits, food, work, environment and physical activity on the incidence of obesity. • Enumerate the causative agents of food poisoning and discuss the pathogenesis, clinical course and laboratory diagnosis. • Describe the methods used and significance of assessing the microbial contamination of food, water and air. • Describe the methods used and significance of assessing the microbial contamination of food, water and air. • Describe the types and causes of protein malnutrition and its effects. • Describe and discuss the importance and methods of food fortification and effects of additives and adulteration.
<p>Socio-emotional</p> <p>Teaching & learning objectives</p>	<p>At the end of final year the learner should be able to</p> <ul style="list-style-type: none"> • Counsel an individual and family on using renewable energy sources • Counsel a mother on infant and young child feeding • Communicate the importance of balanced diet, source of various nutrients in common Indian food • Counsel and individual and family on environmental sanitation and hazards of environmental pollution
<p>Behavioural</p> <p>Teaching & learning objectives</p>	<p>At the end of final year the learner should be able to</p> <ul style="list-style-type: none"> • Calculate energy content of different food items, identify food items with high and low glycaemic index and explain the importance of these in the diet. • Celebration of National Nutrition Week (NNW) is observed from September 1-7 every year. • Facilitate creation of kitchen garden at the hostel and home

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| | <ul style="list-style-type: none"> • Conduct health education sessions on responsible consumption and production for school and college students • Judiciously utilize the non renewable energy utility points at home, workplace and hostels. |
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Topics for SDG 12 “Responsible Consumption and Production”

- Consumption of the healthy foods.
- Behavior change communication in the community
- Production and consumption history, patterns and value chains, and management and use of natural resources (renewable and non-renewable)
- Environmental and social impacts of production and consumption
- Energy production and consumption (transport, commercial and residential energy use, renewable energies)
- Food production and consumption (agriculture, food processing, dietary choices and habits, waste generation, deforestation, over-consumption of food and hunger)
- Medical Tourism
- Waste generation and management (prevention, reduction, recycling, reuse) Sustainable lifestyles and diverse practices of sustainable production and consumption Labeling systems and certificates for sustainable production and consumption.

Learning approaches and methods for SDG 12 “Responsible Consumption and Production”

- Analyze different food products – Nutritive value, caloric value.
- Micro and Macro nutrients identification.
- Perform role plays dealing with different roles in a trading system (producer, advertiser, consumer, waste manager, etc.)
- Screening of short films/documentaries to help the learners understand production and consumption patterns
- Develop and run a (youth) action project related to production and consumption.
- Develop an enquiry-based project: “Is sustainability about giving things up?”

TEACHING & LEARNING OBJECTIVES FOR SDG 12

JSS DENTAL COLLEGE & HOSPITAL

Subject/ topic/ course in regular curriculum relating to SDG 12	<ul style="list-style-type: none"> ● Diet Counselling and Nutrition ● Life style and oral health ● Tobacco Cessation Education / Counselling ● Waste generation and management 	<ul style="list-style-type: none"> ● Oral Medicine & Radiology, Public health Dentistry & Pediatric and preventive Dentistry ● All undergraduate and post graduate students
Cognitive Teaching & learning objectives	<ul style="list-style-type: none"> ● The learner understands how individual lifestyle choices influence social, economic and environmental development. ● The learner understands production and consumption patterns and value chains and the interrelatedness of production and consumption (supply and demand, toxics, CO2 emissions, waste generation, health, working conditions, poverty, etc.). ● The learner knows roles, rights and duties of different actors in production and consumption (media and advertising, enterprises, municipalities, legislation, consumers, etc.). ● The learner knows about strategies and practices of sustainable production and consumption. ● The learner understands dilemmas/trade-offs related to and system changes necessary for achieving sustainable consumption and production. 	
Socio-emotional Teaching & learning objectives	<ul style="list-style-type: none"> ● The learner can communicate the need for sustainable practices in production and consumption. ● The learner can encourage others to engage in sustainable practices in consumption and production. ● The learner can differentiate between needs and wants and to reflect on their own individual consumer behaviour considering the needs of the natural world, other people, cultures and countries, and future generations. ● The learner can envision sustainable lifestyles. ● The learner can feel responsible for the environmental and social impacts of their own individual behaviour as a producer or consumer. 	
Behavioural Teaching & learning objectives	<ul style="list-style-type: none"> ● The learner can plan, implement and evaluate consumption-related activities using existing sustainability criteria. ● The learner can evaluate, participate in and influence decision-making processes about acquisitions in the public sector. ● The learner can promote sustainable production patterns. ● The learner is able take on critically on their role as an active stakeholder in the market. ● The learner can challenge cultural and societal orientations in consumption and production. 	

Suggested topics for SDG 12 “Responsible Consumption and Production”

Advertising, peer-pressure, belonging and identity-creation

Production and consumption history, patterns and value chains, and management and use of natural resources (renewables and non-renewables)

Environmental and social impacts of production and consumption

Energy production and consumption (transport, commercial and residential energy use, renewable energies)

Food production and consumption (agriculture, food processing, dietary choices and habits, waste generation, deforestation, overconsumption of food and hunger)

Tourism

Waste generation and management (prevention, reduction, recycling, reuse) Sustainable

lifestyles and diverse practices of sustainable production and consumption Labelling

systems and certificates for sustainable production and consumption

Examples of learning approaches and methods for SDG 12 “Responsible Consumption and Production”

Calculate and reflect on one’s individual ecological footprint

Analyse different products (e.g. cell phones, computers, clothes) using Life Cycle Analysis (LCA) Run a student company producing and selling sustainable products

Perform role plays dealing with different roles in a trading system (producer, advertiser, consumer, waste manager, etc.)

Screening of short films/documentaries to help the learners understand production and consumption patterns (e.g. *Story of Stuff* by Annie Leonard)

Develop and run a (youth) action project related to production and consumption (e.g. fashion, technology, etc.)

Develop an enquiry-based project: “Is sustainability about giving things up?”

TEACHING & LEARNING OBJECTIVES FOR SDG 12

JSS COLLEGE OF PHARMACY, MYSORE

Subject/ topic/ course in regular curriculum relating to SDG 12	Pharmacognosy, Pharmacology, Jurisprudence, Community Pharmacy, Pharmacotherapeutics
Cognitive Teaching & learning objectives	<p>At the end of final year, the learner should be able to,</p> <ul style="list-style-type: none"> • Describe and discuss the digestion and assimilation of nutrients from food • Explains the Calorific value of common Indian foods. • Describe the health hazards of water pollution • Describe food hygiene • Describe occupational and environmental pesticides, food adulterants, pollutants and insect repellents. • Enumerate the causative agents of food poisoning • Understand the basic concepts regarding the utilization of medicinal plants
Socio-emotional Teaching & learning objectives	<p>At the end of final year, the learner should be able to</p> <ul style="list-style-type: none"> • Counsel an individual and family on using renewable energy sources • Counsel pregnant women, Lactating mothers about balanced diet and sources of nutrients in common Indian food • Counsel individual and family on environmental sanitation and hazards of environmental pollution • Educate the public regarding the common medicinal plants and their benefits in the treatment of common ailments.
Behavioural Teaching & learning objectives	<p>At the end of final year, the learner should be able to</p> <ul style="list-style-type: none"> • Calculate energy content of different food Items, identify food items with high and low glycemic index and explain the importance of these in the diet. • Celebration of National Nutrition Week (NNW) is observed from September 1-7 every year. • Facilitate creation of kitchen garden at the hostel and home • Conduct health education sessions on responsible consumption and production for school and college students • Increase utilization of renewable energy at home, workplace and hostels.

Suggested topics for SDG 12 “Responsible Consumption and Production”

- Production and consumption history, patterns and value chains, and management and use of natural resources (renewable and non-renewable)
- Environmental and social impacts of production and consumption
- Energy production and consumption (transport, commercial and residential energy use, renewable energies)
- Food production and consumption (agriculture, food processing, dietary choices and habits, waste generation, deforestation, over-consumption of food and hunger)
- Medicinal Plant Garden to cater the needs of college.

Examples of learning approaches and methods for SDG 12 “Responsible Consumption and Production”

- Micro and Macro nutrients identification.
- Perform role plays dealing with different roles in a trading system (producer, advertiser, consumer, waste manager, etc.)
- Screening of short films/documentaries to help the learners understand production and consumption patterns
- Organization of events such as conference on Society for Ethnopharmacology where in traditional healers from across the country shall participate and educate the public.

TEACHING & LEARNING OBJECTIVES FOR SDG 12 JSS COLLEGE OF PHARMACY, OOTY

Subject/ topic/ course in regular curriculum relating to SDG 12	<p>• III Pharm D</p> <p>Subject: PHARMACEUTICAL JURISPRUDENCE(</p> <p>Topic: Study of Salient Features of Drugs and magic remedies Act and its rules.</p> <p>Cognitive Teaching & learning objectives:</p> <ul style="list-style-type: none"> • The learner knows roles, rights and duties of different actors in production and consumption (media and advertising, enterprises, municipalities, legislation, consumers, etc.). • The learner knows about strategies and practices of sustainable production and consumption. <p>Socio-emotional Teaching & learning objectives:</p> <ul style="list-style-type: none"> • The learner can communicate the need for sustainable practices in production and consumption. • The learner can encourage others to engage in sustainable practices in consumption and production.. <p>Behavioural Teaching & learning objectives:</p> <ul style="list-style-type: none"> • The learner can plan, implement and evaluate consumption-related activities using existing sustainability criteria. • The learner can promote sustainable production patterns.
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TEACHING & LEARNING OBJECTIVES FOR SDG 12

FACULTY OF HEALTH SYSTEM MANAGEMENT STUDIES

<p>Subject/ topic/ course in regular curriculum relating to SDG 12</p>	<ul style="list-style-type: none"> • Intellectual property (IP) rights- IPs in pharmacy- MBA PA- IV Semester • Environmental studies / BBA- First Semester • Business Law- Consumer protection Act 1986-IV Unit- BBAHSM-III Semester • Cost accounting / inventory and labor management / BBA HSM-III Semester • Quality Management / Quality control techniques / BBA HSM- IV Semester • Corporate social responsibility/ BBA HSM- V Semester
<p>Cognitive Teaching & learning objectives</p>	<ul style="list-style-type: none"> • The learner knows the importance and use of intellectual properties in pharmacy • The learner understands production and consumption patterns and value chains and the interrelatedness of production and consumption of drugs. • The learner knows the consumer rights in present competitive market • The learner knows about techniques of proper allocation of resources in organizational level • The learner knows about the role and responsibilities of corporate in utilizing the natural resources. <div style="display: flex; justify-content: space-around;">   </div>
<p>Socio-emotional Teaching & learning objectives</p>	<ul style="list-style-type: none"> • The learner can communicate the need for sustainable practices in production and consumption of drugs. • The learner can differentiate between needs and wants and to reflect on their own individual consumer behavior considering the needs of the natural world, other people, cultures and countries, and future generations. • The learner can envision sustainable lifestyles. • The learner can feel responsible for the environmental and social impacts of their own individual behavior as a producer or consumer. <div style="display: flex; justify-content: space-around;">   </div>

Behavioural
Teaching & learning
objectives

- The learner can plan, implement and evaluate drugs consumption-related activities using existing sustainability criteria.
- The learner can evaluate, participate in and influence decision-making processes about acquisitions in the public sector.
- The learner can promote sustainable production patterns at organizational level
- The learner is able take on critically on their role as an active stakeholder in quality control at organizational level.



TEACHING & LEARNING OBJECTIVES FOR SDG 12

JSS SCHOOL OF LIFE SCIENCES, OOTY

<p>Cognitive Teaching & learning objectives</p>	<ul style="list-style-type: none"> • The learner understands how individual lifestyle choices influence social, economic and environmental development. • The learner understands production and consumption patterns and value chains and the interrelatedness of production and consumption (supply and demand, toxics, CO2 emissions, waste generation, health, working conditions, poverty, etc.). • The learner knows roles, rights and duties of different actors in production and consumption (media and advertising, enterprises, municipalities, legislation, consumers, etc.). • The learner knows about strategies and practices of sustainable production and consumption. • The learner understands dilemmas/trade-offs related to and system changes necessary for achieving sustainable consumption and production.
<p>Socio-emotional Teaching & learning objectives</p>	<ul style="list-style-type: none"> • The learner can communicate the need for sustainable practices in production and consumption. • The learner can encourage others to engage in sustainable practices in consumption and production. • The learner can differentiate between needs and wants and to reflect on their own individual consumer behaviour considering the needs of the natural world, other people, cultures and countries, and future generations. • The learner can envision sustainable lifestyles. • The learner can feel responsible for the environmental and social impacts of their own individual behaviour as a producer or consumer.
<p>Behavioural Teaching & learning objectives</p>	<ul style="list-style-type: none"> • The learner can plan, implement and evaluate consumption-related activities using existing sustainability criteria. • The learner can evaluate, participate in and influence decision-making processes about acquisitions in the public sector. • The learner can promote sustainable production patterns. • The learner is able take on critically on their role as an active stakeholder in the market. • The learner can challenge cultural and societal orientations in consumption and production.

Suggested topics for SDG 12 "Responsible Consumption and Production"

Advertising, peer-pressure, belonging and identity-creation

Production and consumption history, patterns and value chains, and management and use of natural resources (renewables and non-renewables)

Environmental and social impacts of production and consumption

Energy production and consumption (transport, commercial and residential energy use, renewable energies)

Food production and consumption (agriculture, food processing, dietary choices and habits, waste generation, deforestation, overconsumption of food and hunger)

Tourism

Waste generation and management (prevention, reduction, recycling, reuse)

Sustainable lifestyles and diverse practices of sustainable production and consumption

Labelling systems and certificates for sustainable production and consumption

Green economy (cradle-to-cradle, circular economy, green growth, degrowth)

Examples of learning approaches and methods for SDG 12 "Responsible Consumption and Production"

Calculate and reflect on one's individual ecological footprint

Analyse different products (e.g. cell phones, computers, clothes) using Life Cycle Analysis (LCA)

Run a student company producing and selling sustainable products

Perform role plays dealing with different roles in a trading system (producer, advertiser, consumer, waste manager, etc.)

Screening of short films/documentaries to help the learners understand production and consumption patterns (e.g. *Story of Stuff* by Annie Leonard)

Develop and run a (youth) action project related to production and consumption (e.g. fashion, technology, etc.)

Develop an enquiry-based project: "Is sustainability about giving things up?"

DEPARTMENT OF YOGA

Subject/ topic/ course in regular curriculum relating to SDG 12	The course MSc in Yoga indirectly includes topics supporting production and consumption.
Cognitive Teaching & learning objectives	At the end of 2nd year and course the learner should be able to, <ul style="list-style-type: none"> Understand how Yoga education & practice influence social, economic and environmental development.
Socio-emotional Teaching & learning objectives	At the end of 2nd year and course the learner should be able to, <ul style="list-style-type: none"> Communicate and educate the need for Yoga for health & society.
Behavioural Teaching & learning objectives	At the end of 2nd year and course the learner should be able to, <ul style="list-style-type: none"> Implement plans on different yoga programme for global population. Take on critically on their role as an active stakeholder in the market, can influence positively on cultural and societal orientations in consumption and production.

Topics for SDG 12 “Responsible Consumption and Production”

- Understand factors influencing Yoga on social, economic and environmental for sustainable development.
- Yoga for mental health.

Examples of learning approaches and methods for SDG 12 “Responsible Consumption and Production”

- Play their role as an active stakeholder in the market, can influence positively on cultural and societal orientations.

BSC Yoga

Subject/ topic/ course in regular curriculum relating to SDG 12	<ul style="list-style-type: none"> The course B.Sc in Yoga indirectly includes topics supporting production and consumption.
Cognitive Teaching & learning objectives	At the end of the 1st year learner should be able to <ul style="list-style-type: none"> Understand how Yoga education & practice influence social, economic and environmental development.

Socio-emotional Teaching & learning objectives	At the end of final year learner should be able to <ul style="list-style-type: none"> • Communicate and educate the need for Yoga for health & society.
Behavioural Teaching & learning objectives	At the end of course year learner should be able to <ul style="list-style-type: none"> • Implement plans on different yoga programme for global population. • Take on critically on their role as an active stakeholder in the market, can influence positively on cultural and societal orientations in consumption and production.

Suggested topics for SDG 12 “Responsible Consumption and Production”

- Understand factors influencing Yoga on social, economic and environmental for sustainable development.
- Yoga for mental health.

Examples of learning approaches and methods for SDG 12 “Responsible Consumption and Production”

- Play their role as an active stakeholder in the market, can influence positively on cultural and societal orientations.

DEPARTMENT OF MICROBIOLOGY

Subject/ topic/ course in regular curriculum relating to SDG 12

- Food & Dairy Technology (MSc II Sem); Industrial Microbiology & Fermentation Technology (MSc III Sem); Microbial Biotechnology (BSc VI Sem)

Cognitive Teaching & learning objectives

- The learner understands processing of different food commodities; production and consumption of healthy food; knows roles, played by microorganisms in improving the quality of food; studies isolation of agriculturally and industrially important microorganisms; labelling of genetically modified food materials.

Socio-emotional Teaching & learning objectives

- The learner can communicate with local farmers for sustainable practices in production and consumption; encourage others to engage in sustainable practices in consumption and production; recognize genetically modified food; responsible for the environmental and social impacts of their own individual behaviour as a producer or consumer.

Behaviorial Teaching & Learning objectives

- The learner can improve quality control and quality assurance in food production; evaluate, effect of various pathogen responsible for crop loss; promote sustainable management of microbial pathogens; able take on critically on their role as an active stakeholder in the market.



Learning approaches and methods for SDG 12

- Design of Microbial Fuel Cells
- Micro-organisms for large-scale production of chemical commodities, industrial bioproducts and NP synthesis
- Microbial bio-technology for sustainable recovery of precious metal from waste streams



Suggested topics for students workshop

- Training on promoting Organic Farming and use of integrated technologies
- Workshop on production of sustainable bioproducts

DEPARTMENT OF ENVIRONMENTAL SCIENCES

Course Name in curriculum relating to SDG 12	<ul style="list-style-type: none"> • Biodiversity Conservation and Management (DSC 05) • Ecotourism (OEC 03) • Sustainable Development (OEC 04) • Wildlife Management and Conservation (DSC 14)
Cognitive Teaching & learning objectives	<ul style="list-style-type: none"> • The learner understands how individual lifestyle choices influence social, economic, and environmental resource conservation. • The learner understands production and consumption patterns and value chains and the interrelatedness of production and consumption (supply and demand, toxics, CO₂ emissions, waste generation, health, working conditions, poverty, etc.). • The learner knows roles, rights, and duties of different actors in production and consumption (media and advertising, enterprises, municipalities, legislation, consumers, etc.). • The learner knows about strategies and practices of sustainable production and consumption. • The learner understands dilemmas/trade-offs related to and system changes necessary for achieving sustainable consumption and production.
Socio-emotional Teaching & learning objectives	<ul style="list-style-type: none"> • The learner can communicate the need for sustainable practices in production and consumption. • The learner can encourage others to engage in sustainable practices in consumption and production. • The learner can differentiate between needs and wants and to reflect on their own individual consumer behavior considering the needs of the natural world, other people, cultures and countries, and future generations. • The learner can envision sustainable lifestyles. • The learner can feel responsible for the environmental and social impacts of their own individual behavior as a producer or consumer.
Behavioral Teaching & learning objectives	<ul style="list-style-type: none"> • The learner can plan, implement, and evaluate consumption-related activities using existing sustainability criteria. • The learner can evaluate, participate in and influence decision-making processes about acquisitions in the public sector. • The learner can promote sustainable production patterns. • The learner is able take on critically on their role as an active stakeholder in the market. • The learner can challenge cultural and societal orientations in consumption and production.
Suggested topics for SDG 12 “Responsible Consumption and Production”	
<ul style="list-style-type: none"> • Advertising, peer-pressure, belonging and identity-creation • Production and consumption history, patterns and value chains, and management and use of 	

- natural resources (renewables and non-renewables)
- Environmental and social impacts of production and consumption
- Energy production and consumption (transport, commercial and residential energy use, renewable energies)
- Food production and consumption (agriculture, food processing, dietary choices and habits, waste generation, deforestation, overconsumption of food and hunger)
- Tourism
- Waste generation and management (prevention, reduction, recycling, reuse) Sustainable lifestyles and diverse practices of sustainable production and consumption Labelling systems and certificates for sustainable production and consumption
- Green economy (cradle-to-cradle, circular economy, green growth, degrowth)

Examples of learning approaches and methods for SDG 12 “Responsible Consumption and Production”

- Calculate and reflect on one’s individual ecological footprint
- Analyze different products (e.g. cell phones, computers, clothes) using Life Cycle Analysis (LCA) Run a student company producing and selling sustainable products
- Perform role plays dealing with different roles in a trading system (producer, advertiser, consumer, waste manager, etc.)
- Screening of short films/documentaries to help the learners understand production and consumption patterns (e.g. *Story of Stuff* by Annie Leonard)
- Develop and run a (youth) action project related to production and consumption (e.g. fashion, technology, etc.) Develop an enquiry-based project: “Is sustainability about giving things up?”

Dept. of Nutrition & Dietetics

Subject/ topic/ course in regular curriculum relating to SDG 12	<ul style="list-style-type: none"> • The course MSc in Nutrition & Dietetics indirectly includes topics supporting responsible food production and consumption.
Cognitive Teaching & learning objectives	<p>At the end of 2nd year and course the learner should be able to,</p> <ul style="list-style-type: none"> • Understand how individual dietary and lifestyle choices influence social, economic and environmental development. • Understand production and consumption patterns, food chains, and role as nutritionist to promote mindful eating behavior. • Know about strategies and practices of sustainable food production and consumption, achieving food and nutrition security for all.
Socio-emotional Teaching & learning objectives	<p>At the end of 2nd year and course the learner should be able to,</p> <ul style="list-style-type: none"> • Communicate and educate the need for sustainable food production and consumption. • Encourage students, and all age groups to engage in sustainable practices for proper food consumption, reducing food wastage from farm to fork.
Behavioural Teaching & learning objectives	<p>At the end of 2nd year and course the learner should be able to,</p> <ul style="list-style-type: none"> • Plan, implement and evaluate consumption-related activities using existing sustainability criteria,

	<ul style="list-style-type: none"> • Implement plans on meeting the nutritional needs of growing global population which requires sustainable solutions for food production and access to water, reducing inefficient food production, greenhouse gas emissions, food carbon foot print. • Take on critically on their role as an active stakeholder in the market, can influence positively on cultural and societal orientations in consumption and production.
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Suggested topics for SDG 12 “Responsible Consumption and Production”

- Understand factors influencing dietary and lifestyle choices such as social, economic and environmental for sustainable development.
- Production and consumption patterns, food chains, and role as nutritionist to promote mindful eating behavior.
- Strategies and practices of sustainable food production and consumption, achieving food and nutrition security for all.

Examples of learning approaches and methods for SDG 12 “Responsible Consumption and Production”

- Plan, implement and evaluate consumption-related activities using existing sustainability criteria,
- Plan on meeting the nutritional needs of growing global population which requires sustainable solutions for food production and access to water, reducing inefficient food production, greenhouse gas emissions, food carbon foot print.
- Play their role as an active stakeholder in the market, can influence positively on cultural and societal orientations in consumption and production.
- Screening of short films/documentaries to help the learners understand production and consumption patterns.

MSc Sports Nutrition & Management

Subject/ topic/ course in regular curriculum relating to SDG 12	<ul style="list-style-type: none"> • All laboratory papers/entrepreneurship/ Principles of marketing
Cognitive Teaching & learning objectives	<p>At the end of 1st professional year, the student should be able to</p> <ul style="list-style-type: none"> • understand how individual choices in laboratory practices influence environment. • understand the significance and relationship between production and consumption in entrepreneurial ventures and strategies and practices to be followed for sustainable production and consumption.

Socio-emotional Teaching & learning objectives	At the end of the program, the student should be able to <ul style="list-style-type: none"> communicate the need for sustainable practices and encourage others to engage in sustainable laboratory practices. differentiate between needs and wants in entrepreneurial and laboratory practices thus aiding the future generations.
Behavioural Teaching & learning objectives	At the end of the program, the student should be able to <ul style="list-style-type: none"> take critical role and be an active stakeholder in sustainable laboratory and entrepreneurial ventures

Suggested topics for SDG 12 “Responsible Consumption and Production”

Advertising, peer-pressure, belonging and identity-creation
Green economy

Examples of learning approaches and methods for SDG 12 “Responsible Consumption and Production”

Calculate and reflect on one’s individual ecological footprint

BSc Food, Nutrition & Dietetics

Subject/ topic/ course in regular curriculum relating to SDG 12	<ul style="list-style-type: none"> Food Science, Nutrition Through Lifecycle, Food Quality Control, Food Processing and Technology, Food & Nutrition Security, Public Health and Community Nutrition
Cognitive Teaching & learning objectives	<p>At the end of the 1st year learner should be able to</p> <ul style="list-style-type: none"> Understand the significance and interrelationship between food and nourishment Understand the importance of food and nourishment. The learner knows the need for sustainable production and consumption of food thereby help in reducing malnutrition <p>At the end of 2nd year learner should be able to</p> <ul style="list-style-type: none"> Understand the importance of nutrition through the lifecycle and how nutrition helps in establishing a healthy life stage Understands the concepts of food security and how food processing and technology help by minimizing the food waste and achieving food security

	<ul style="list-style-type: none"> Understand the use of locally produced foods and the establishment of kitchen garden thereby help in reducing the carbon footprint
Socio-emotional Teaching & learning objectives	<p>At the end of 3rd year learner should be able to</p> <ul style="list-style-type: none"> Understand human nutrition and establishing healthy lifestyle habits for the community. Use sustainable practices in food production and consumption <p>At the end of 4th year learner should be able to</p> <ul style="list-style-type: none"> Communicate the need for reducing the food waste Encourage others to engage in sustainable practices in food consumption and production. Help community understand the appropriate cooking practices to minimize cooking loss
Behavioural Teaching & learning objectives	<p>At the end of course year learner should be able to</p> <ul style="list-style-type: none"> Evaluate and influence the eating behavior by nutrition education Plan, implement and evaluate activities to minimize food waste Promote the use of locally grown foods. Establish a connection between producers and consumers to improve the feasibility of using locally produced goods Encourage them and work with the community to establish a community kitchen garden

Suggested topics for SDG 12 “Responsible Consumption and Production”

Five Food Group system. Food guide. Functions of food, Study of cooking methods

relationship between food and nutrition

Nutrition and Health

Energy flow in an ecosystem: food chain and food webs

Importance common processing methods.

Food production and consumption (agriculture, food processing, dietary choices and habits, waste generation, deforestation, overconsumption of food and hunger)

Waste generation and management in product development

Labelling systems and certificates for sustainable production and consumption

Examples of learning approaches and methods for SDG 12 “Responsible Consumption and Production”

Calculate and reflect on one’s individual ecological footprint

Demonstration of methods to reduce food waste and waste management

Analyse different products (e.g. cell phones, computers, clothes) using Life Cycle Analysis (LCA)

Screening of short films/documentaries to help the learners understand production and consumption patterns

Develop and run a (youth) action project related to food production and consumption

DIVISION OF BIOCHEMISTRY

Subject/ topic/ course in regular curriculum relating to SDG 12	<ul style="list-style-type: none"> • Protein Chemistry and Technology • Proteomics
Cognitive Teaching & learning objectives	<p>This course aims to provide the students with</p> <ul style="list-style-type: none"> • an introduction to current methodologies and trends in the field of proteomics. • an overview and awareness of typical proteomics applications both from lectures and an introduction to proteomics lab work. <p>Upon successful completion of this course, students will be able to</p> <ul style="list-style-type: none"> • Understand the advantages and disadvantages of proteomics over wet lab experimental methods with emerging technologies. • Participate in scientific discussions regarding proteomics technologies critically • Understand the strategies in protein engineering and its applications in the production and consumption of protein supplements. • Understand the value of protein isolation, characterization, mass production, and consumption. • Identify the physical basis for protein denaturation and its stability and its effect on the production and consumption of protein-rich food products. • Develop strategies and practices of various protein stabilizers and their applications in sustainable production and consumption. • understand the process of making protein isolates and concentrates, and factors affecting the quality of isolates and concentrates that are necessary for achieving sustainable consumption and production.
Socio-emotional Teaching & learning objectives	<ul style="list-style-type: none"> • The learner can communicate the need for sustainable practices in the production and consumption of protein isolates and concentrates. • The learner can encourage others to engage in sustainable practices in protein consumption and production. • The learner can differentiate between the needs and wants of protein isolates and concentrates and reflect on their own individual consumer behavior considering the needs of the natural world, other people, cultures and countries, and future generations. • The learner can envision artificial peptide synthesis and their applications in sustainable production and consumption. • The learner can learn the importance of engineering of peptide-based therapeutics and antibiotics.
Behavioural Teaching & learning objectives	<ul style="list-style-type: none"> • The learner can plan, implement and evaluate consumption-related activities using existing sustainability criteria in peptide-based therapeutics and antibiotics. • The learner can evaluate, participate in and influence decision-making processes about production and consumption of protein isolates and concentrates. • The learner can promote sustainable production patterns. • The learner is able take on critically on their role as an active stakeholder in the market

Suggested topics for SDG 12 “Responsible Consumption and Production”

Advertising, peer-pressure, belonging and identity-creation

Production and consumption history, patterns and value chains, and management and use of natural resources (renewables and non-renewables)

Environmental and social impacts of production and consumption

Energy production and consumption (transport, commercial and residential energy use, renewable energies)

Food production and consumption (agriculture, food processing, dietary choices and habits, waste generation, deforestation, overconsumption of food and hunger)

Tourism

Waste generation and management (prevention, reduction, recycling, reuse)

Sustainable lifestyles and diverse practices of sustainable production and consumption

Labelling systems and certificates for sustainable production and consumption

Green economy (cradle-to-cradle, circular economy, green growth, degrowth)

Examples of learning approaches and methods for SDG 12 “Responsible Consumption and Production”

Calculate and reflect on one’s individual ecological footprint

Analyse different products (e.g. cell phones, computers, clothes) using Life Cycle Analysis (LCA)

Run a student company producing and selling sustainable products

Perform role plays dealing with different roles in a trading system (producer, advertiser, consumer, waste manager, etc.)

Screening of short films/documentaries to help the learners understand production and consumption patterns (e.g. *Story of Stuff* by Annie Leonard)

Develop and run a (youth) action project related to production and consumption (e.g. fashion, technology, etc.)

Develop an enquiry-based project: “Is sustainability about giving things up?”

DIVISION OF COGNITIVE NEUROSCIENCE AND PSYCHOLOGY

Subject/ topic/ course in regular curriculum relating to SDG 12	<ul style="list-style-type: none"> • Fundamentals of marketing and consumer behaviour
Cognitive Teaching & learning objectives	<ul style="list-style-type: none"> • The learner understands how individual lifestyle choices influence social, economic and environmental development. • The learner understands production and consumption patterns and value chains and the interrelatedness of production and consumption (supply and demand, toxics, CO2 emissions, waste generation, health, working conditions, poverty, etc.). • The learner knows roles, rights and duties of different actors in production and consumption (media and advertising, enterprises, municipalities, legislation, consumers, etc.). • The learner knows about strategies and practices of sustainable production and consumption. • The learner understands dilemmas/trade-offs related to and system changes necessary for achieving sustainable consumption and production.
Socio-emotional Teaching & learning objectives	<ul style="list-style-type: none"> • The learner can communicate the need for sustainable practices in production and consumption. • The learner can encourage others to engage in sustainable practices in consumption and production. • The learner can differentiate between needs and wants and to reflect on their own individual consumer behaviour considering the needs of the natural world, other people, cultures and countries, and future generations. • The learner can envision sustainable lifestyles. • The learner can feel responsible for the environmental and social impacts of their own individual behaviour as a producer or consumer.
Behavioural Teaching & learning objectives	<ul style="list-style-type: none"> • The learner can plan, implement and evaluate consumption-related activities using existing sustainability criteria. • The learner can evaluate, participate in and influence decision-making processes about acquisitions in the public sector. • The learner can promote sustainable production patterns. • The learner is able take on critically on their role as an active stakeholder in the market. • The learner can challenge cultural and societal orientations in consumption and production.

Suggested topics for SDG 12 “Responsible Consumption and Production”

Understanding consumer needs and marketing management orientation

Production and consumption history, patterns and value chains, and management and use of natural resources (renewables and non-renewables)

Product, price and promotion and advertising

Environmental and social impacts of production and consumption

Energy production and consumption (transport, commercial and residential energy use, renewable energies)

Food production and consumption (agriculture, food processing, dietary choices and habits, waste generation, deforestation, overconsumption of food and hunger)

Consumer decision making process

Waste generation and management (prevention, reduction, recycling, reuse)

Sustainable lifestyles and diverse practices of sustainable production and consumption

Examples of learning approaches and methods for SDG 12 “Responsible Consumption and Production”

Calculate and reflect on one’s individual ecological footprint

Analyse different products (e.g. cell phones, computers, clothes) using Life Cycle Analysis (LCA)

Run a student company producing and selling sustainable products

Perform role plays dealing with different roles in a trading system (producer, advertiser, consumer, waste manager, etc.)

Screening of short films/documentaries to help the learners understand production and consumption patterns (e.g. *Story of Stuff* by Annie Leonard)

Develop and run a (youth) action project related to production and consumption (e.g. fashion, technology, etc.)

Develop an enquiry-based project: “Is sustainability about giving things up?”

DIVISION OF MEDICAL PHYSICS

Subject/ topic/ course in regular curriculum relating to SDG 12	<ul style="list-style-type: none"> • Radiation Safety and Standards
Cognitive Teaching & learning objectives	<ul style="list-style-type: none"> • Follow the Radiation Safety and Radiation Standards stipulated by the Radiation Regulatory authority. • Describe the health hazards related to Radiation and Nuclear Medicine.
Socio-emotional Teaching & learning objectives	<ul style="list-style-type: none"> • Awareness to the patient and public about the Radiation ALARA principle.
Behavioural Teaching & learning objectives	<ul style="list-style-type: none"> • Conduct health education sessions on responsible consumption and production for school and college students.

Suggested topics for SDG 12 “Responsible Consumption and Production”

- Production and consumption of radioactive isotopes with safer manner as per the AERB Safety guidelines.
- Disposal of Radioactive waste isotopes disposed as per the AERB Safety guidelines.
- Display of the Radiation symbols in the respective radiation area.
- Display of Diagnostic Xray procedures and therapeutics should be displayed on the public notice board
- Radioactive Isotopes transportation should be carried out as per the AERB guidelines.
- Radioactive wastes -classification & segregation should be done as per the AERB guidelines .

DIVISION OF MEDICAL STATISTICS

Subject/ topic/ course in regular curriculum relating to SDG 12	<ul style="list-style-type: none"> • Operational Research and Quality Control. • Multivariate analysis
Cognitive Teaching & learning objectives	<ul style="list-style-type: none"> • The learner understands how individual lifestyle choices influence social, economic and environmental development. • The learner understands production and consumption patterns and value chains and the interrelatedness of production and consumption (supply and demand, toxics, CO2 emissions, waste generation, health, working conditions, poverty, etc.). • The learner knows roles, rights and duties of different actors in production and consumption (media and advertising, enterprises, municipalities, legislation, consumers, etc.). • The learner knows about strategies and practices of sustainable production and consumption. • The learner understands dilemmas/trade-offs related to and system changes necessary for achieving sustainable consumption and production.
Socio-emotional Teaching & learning objectives	<ul style="list-style-type: none"> • The learner can communicate the need for sustainable practices in production and consumption. • The learner can encourage others to engage in sustainable practices in consumption and production. • The learner can differentiate between needs and wants and to reflect on their own individual consumer behaviour considering the needs of the natural world, other people, cultures and countries, and future generations. • The learner can envision sustainable lifestyles. • The learner can feel responsible for the environmental and social impacts of their own individual behaviour as a producer or consumer.
Behavioural Teaching & learning objectives	<ul style="list-style-type: none"> • The learner can plan, implement and evaluate consumption-related activities using existing sustainability criteria. • The learner can evaluate, participate in and influence decision-making processes about acquisitions in the public sector. • The learner can promote sustainable production patterns. • The learner is able take on critically on their role as an active stakeholder in the market. • The learner can challenge cultural and societal orientations in consumption and production.

Suggested topics for SDG 12 “Responsible Consumption and Production”

- ✓ Concept Analysis in Responsible Production for Sustainability
- ✓ A comparative analysis
- ✓ Data Science Methods
- ✓ Consumption and Production: an operational approach

Examples of learning approaches and methods for SDG 12 “Responsible Consumption and Production”

- ✓ Sustainable consumption and production patterns: A time series analysis
- ✓ To analyse sustainable consumption and production trends in supply chains using fuzzy Analytical Hierarchy
- ✓ Predictive analytics on collaborative performance in context to sustainable consumption and production behaviour
- ✓ To Address Challenges in Sustainable Consumption and Production at Multiple Scales

DIVISION OF GEOINFORMATICS

Subject/ topic/ course in regular curriculum relating to SDG 1	<ul style="list-style-type: none"> • Solid Waste Management using GIS • Site suitability for agriculture and crops. • Spatial-Temporal analysis of the deforestation, forestation
Cognitive Teaching & learning objectives	<p>At the end of 2nd year the learner should be able to</p> <ul style="list-style-type: none"> • Understands how individual lifestyle choices influence social, economic and environmental development. • Understands production and consumption patterns and value chains and the interrelatedness of production and consumption (supply and demand, toxins, CO2 emissions, waste generation, health, working conditions, poverty, etc.). • Knows the roles, rights and duties of different actors in production and consumption (media and advertising, enterprises, municipalities, legislation, consumers, etc.). • Knows about strategies and practices of sustainable production and consumption.
Socio-emotional Teaching & learning objectives	<p>At the end of final year the student should be able to</p> <ul style="list-style-type: none"> • Communicate the need for sustainable practices in production and consumption. • Encourage others to engage in sustainable practices in consumption and production. • Differentiate between needs and wants and reflect on their own individual consumer behaviour considering the needs of the natural world, other people, cultures and countries, and future generations
Behavioural Teaching & learning objectives	<p>At the end of the program the learner should be able to</p> <ul style="list-style-type: none"> • Plan, implement and evaluate consumption-related activities using existing sustainability criteria & GIS. • Evaluate, participate in and influence decision-making processes about acquisitions in the public sector. • Promote sustainable production patterns. • Able to take on critically their role as an active stakeholder in the market. • Challenge cultural and societal orientations in consumption and production.

Suggested topics for SDG 12 “Responsible Consumption and Production.”

- A GIS-Based Simulation Method for Regional Food Potential
- GIS is used for the study of resource needs, plan efficient land use and protect the environment by guaranteeing the survival of future generations
- investigate regional food consumption and production potential

Examples of learning approaches and methods for SDG 12 “Responsible Consumption and Production.”

- Calculate and reflect on one’s individual ecological footprint
- Analyze and investigate regional food consumption and production potential of the region using GIS.
- Perform role plays dealing with different roles in a trading system (producer, advertiser, consumer, waste manager, etc.)
- Case studies on GIS application on consumption and production.
- IIRS EDISAT online programs and ESRIMOOCs.



‘Touching the lives of Millions’

Focusing on a purpose as expansive and yet as specific as improving quality of life through Human Development, the JSS Mahavidyapeetha has grown from strength to strength. A long and healthy life, Education for all and a decent standard of living, the indicators of Human development, have been the underlying philosophy of Jagadguru Sri Veerasimhasana Mahasamsthana Math, Suttur Srikshethra, for centuries. This is also the philosophy for which the Mahavidyapeetha today stands for.

Under the untiring efforts of Jagadguru Dr. Sri Shivarathri Rajendra Mahaswamiji, the Mahavidyapeetha has witnessed enormous growth in the field of education and today has over 300 institutions under its fold, from kindergartens to postgraduate centres and postdoctoral research catering to the educational needs of more than 1,00,000 students.

The Mahavidyapeetha continues to play an important role in expanding the scope of its activities to several branches of knowledge, welfare, and culture. Its educational efforts span crèches for toddlers of working rural women, schools to impart primary and secondary education in both Kannada and English medium, Colleges, Polytechnics, Technical, Medicine, etc. For realizing its mission, it has equipped itself with an extensive infrastructure and an army of dedicated and highly qualified human resource. These institutions, located in strategic areas, serve a broad spectrum of society, from virtually remote tribal villages to metropolitan cities such as Bengaluru, Noida, New Delhi, Ooty, and Coimbatore, besides their presence in United States, Mauritius, and Dubai.

Apart from formal education, the initiatives stretch to integrated rural development through training and empowering of rural folk, reaching out healthcare to people through modern and traditional Indian systems of medicine, patronizing literary activities, visual arts, performing arts, restoration of temples and historical monuments.

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