DDU Kaushal Kendra (Session 2022-23)

Bachelor of Vocation (B. Voc.) is launched under the scheme of University Grants Commission for skill development based on higher education leading to Bachelor of Vocation (B. Voc.) Degree, with multiple exits as Certificate/Diploma /Advanced Diploma/Degree under the National Skill Qualification framework (NSQF).The B. Voc. Programme incorporate specific job roles and their National Occupational Standards along broad based general education. B. Voc. Programme has been designed as per National Skill Qualification Framework (NSQF) emphasizing on skill based education.

B.VOC FOOD PROCESSING & ENGINEERING

Programme Outcome

This course is concentrated on making the students "ready to work" for different food industries enhancing their employability. This course combines vocational and management concepts. Food processing is a contemporary exercise that develops efficiency and improves promotion of the food products. This course is based on developing set of methods and techniques which can be used to transform raw materials into nutritious and safe food for consumption. The course has essentially been designed for students wishing to enhance their employability. This course facilitate such students in learning, earning and growing professionally. The course offers to eligible candidates:

- PO1: Inculcate the judicious mix of skills in Food Processing industries.
- PO2: Familiarize with the social, economic and environmental context within which the food processing industry operates.
- PO3: Explain and apply the various tools and techniques for developing efficient expertise in innovative, trendy and interesting disciplines of choice.
- PO4: Acquaint themselves the latest skills and talents required to meet the industry demand and to become a competent global workforce.
- PO5: Establish themselves possessing employability and communication skills with a presentable personality

Programme Specific outcome

- PSO1: Understand the dynamics of food processing industry and its impact on the economy and the society.
- PSO2: Acquire adequate knowledge and skills on the trade so that they are ready to perform in the specified job role at each exit point of the programme.
- PSO3: Identify the suitable job roles and responsibilities for employment in the food processing and quality management related industry.

NSQF Level-4 Baking Technician / Operative FOR Part -I (SEMESTER-I)

Course outcome

BVG - 014: Basics of Food Processing

CO1 Explain the importance of food processing and its general principles

CO2 Describe the equipment used in food industry, explain different types of food processing techniques CO3 Students will be able to understand set of methods and techniques used to transform raw ingredients into finished and semi-finished products

CO4 Explain the different types of food processing methods in general

CO5 Conversion of good quality raw materials into attractive, marketable and often long shelf-life food products.

BVFPE-114: Bakery Science & Technology

CO1 Explain the current status of bakery industries in India, raw materials of bakery products

CO2 Explain the technology of baking and wide-ranging understanding of baking science

CO3 Explain the preparation steps for the manufacture of bakery products and will also learn about gluten structure and its functionality in baking

CO4 Familiarize with Bakery machinery and equipment

CO5 Students will learn preparation of various bakery products like bread, biscuits, cookies, cakes, buns and rusks. This will be of great deal of importance in light of current market trends for consumers.

BVFPE-115 Basics of Food Safety & Microbiology

CO1	Describe the importance of Food Microbiology, identify the micro-organisms which are importance to food industry
CO2	Demonstrate the working of equipment, procedure of washing and sterilization of glassware
CO3	Identify the causes of food spoilage and food borne diseases.
CO4	Identify the micro-organisms involved in food spoilage and food poisoning organisms
CO5	Students will learn importance of personal hygiene, sanitation and cleaning programmes.

BVFPE-116 Practical Paper pertaining to Bakery Science & Technology

CO1 Acquire the skills of the technologies behind bakery products
CO2 Understanding preparation techniques used in bakery industry
CO3 Innovating modified bakery products for different health conditions
CO4 Performing various tests to evaluate the quality of bakery products
CO5 Students will learn preparation of various bakery products like bread, biscuits, cookies, cakes, buns and rusks. This will be of great deal of importance in light of current market trends for consumers.

BVFPE-117: Practical Paper pertaining to Basics of food safety & microbiology

CO1 Understand the important genera of microorganisms associated with food and their characteristics, their growth pattern and parameters.
CO2 Understand the role of personal hygiene and sanitation techniques in food industries
CO3 Performance the techniques used for isolation of microorganisms
CO4 Learn about the sterilization techniques using various instruments
CO5 Understand the laboratory techniques to detect, quantify, and identify microorganisms in foods

NSQF Level-5 Food Products Packaging Technician For part -I (semester-II)

- A Food Products Packaging Technician performs various packaging functions and handles all categories of packaging such as primary, secondary and tertiary packaging for food products.
- A Food Products Packaging Technician must have the ability to plan, organize, prioritize, calculate and handle pressure.
- The individual must possess reading, writing and communication skills. In addition, the individual must be a team worker and have good hand eye coordination.

Course outcome

BVG - 015 Principles of Food Preservation

CO1 Students will get the knowledge of principles of food preservation which will also include a brief study of deteriorative factors of food constituents.
CO2 Understand the importance of microorganisms in food preservation.
CO3.Understanding of the concept of different processing and preservation technologies
CO4 Important application of various preservation methods in food industries
CO5 Explain the different types of food preservation by high temperature, low temperature and chemicals

BVFPE-214 Basics of Food Packaging

CO1 Comprehend the overview of the scientific and technical aspects of food packaging
CO2 Understand packaging machinery, systems, testing
CO3 An insight to food packaging laws and regulations
CO4 An understanding of packaging requirement and packaging designing of food.
CO5 Students learn to get the consumers attention with packaging techniques amidst all the food products

BVFPE-215: Food Packaging Techniques

CO1 Introduction of the most recent developments in food packaging including non-biodegradable, semi-biodegradable and biodegradable packaging materials

CO2 Explain the status of current packaging, critical review of the existing knowledge in packaging of products, Special needs

CO3 Explain about Packaging Design & Environmental Issues in Packaging

CO4 Intelligent and active packaging, analytical aspects such as shelf-life prediction,

CO5 Understand the package development considerations

BVFPE-216 Practical paper pertaining to Basics of Food Packaging

CO1 An understanding of different food packaging materials and packaging design and techniques used for various foods

CO2 Understand types of packaging materials

CO3 Performing various tests to check the quality of food package

CO4 Understand labelling of packaging materials

CO5 Correlation of different food products with food packaging materials

BVFPE-217 Practical paper pertaining to Food Packaging Techniques

CO1 Understand the use of dimensional analysis in designing of food packs

CO2 Learning the latest techniques involved in food packaging

CO3 Explain safety practices for packaging food materials

CO4 Analysis of critical control points involved during packing of food products

CO4 Understanding environmental issues in designing packaging materials

NSQF Level-6 Chief Miller For part -II (semester-III& IV)

- A Chief Miller manages the milling process for all types of grains while maintaining food safety and hygiene in the work environment.
- A Chief Miller manages the milling process for all types of grains overseeing activities such as handling of various milling machineries, maintenance of process parameters, inspection of raw material and finished goods to achieve the desired quality and quantity of products.
- A Chief Miller must have the ability to plan, organize, prioritize, calculate, concentrate and handle pressure. The individual must possess reading, writing and communication skills. In addition, the individual must have mechanical aptitude and trouble shooting skills.

Course outcome

BVG -016: Food Chemistry

CO1 Describe the various physical and chemical properties of foods

CO2 Define Carbohydrate, classify carbohydrate and explain the structure and function of Carbohydrates

CO3 Define Protein, amino acid, classify and explain the structure and function of protein

CO4 Define Lipids, classify and explain the structure and function of Lipids

CO5 Define enzymes, Vitamins and explain the role of enzyme in food processing

BVFPE-314 Technology of Cereal Processing

CO1 Explain the composition, structure and processing characteristic of cereal grains.

CO2 Describe the structure, types, composition, quality characteristics and Physicochemical properties of rice.

CO3 Describe the structure, types, composition, quality characteristics and Physicochemical properties of Wheat

CO4 Students will learn about working of machinery and equipments employed in wheat and rice milling industry

CO5. Learn practices and procedures for the production of safe, high quality cereal-based products.

BVFPE-315 Food Plant Layout & Sanitation

CO1 Learn about the importance of food plant layout.

CO2 Learn about design and manufacturing facilities that can quickly and effectively adapt to changing technological and market requirements.

CO3 Understand the development of Good Manufacturing Practices (GMP) programmes

CO4 Learn the foundation for the preparation of a Hazard Analysis and Critical Control Point (HACCP) system.

CO5 Learn about the sanitary aspects of food plant design.

BVFPE-316 Practical Paper pertaining to Technology of Cereal Processing

CO1 Acquire the skills of the technologies behind cereal products

CO2 Understanding preparation techniques used in cereal industry

CO3 Innovating modified cereal products for different health conditions

CO4 Performing various tests to evaluate the quality of cereals and cereal products

CO5 Students will learn techniques of fermentation and sprouting of cereals

BVFPE-317 Practical Paper pertaining to Food Plant Layout & Sanitation

CO1 Understand about hygiene and sanitation

CO2 Understand the role of Sanitation in work area, equipments and glassware

CO3 Explain about waste management

CO4 Understand role of safety equipments

CO5 Performing various tests to evaluate the quality of water

BVG-017 Food Additives

CO1 Understand food additive legislation

CO2 Learn chemical and technological properties of the most relevant food additives used as food improvement agents.

CO3 Explain nutritional additives, preservatives, flavouring agent, colouring agent, methods used for safety evaluation,

CO4 Explain general principles of preservatives used in processed food

CO5 Consequences of use, risks and benefits of food additives.

BVFPE-414 Technology of Pulse Processing

CO1 Understand wide range of pulse varieties and variants; splits, whole, natural or hulled *pulses.*

CO2 Learn about various processing methods of pulses

CO3 Learn quality parameters used in processing of pulses

CO4 Explain toxic factors of pulses and processing techniques used in reducing toxicity

CO5 Understand basic packaging requirements for pulses

BVFPE-415 Quality Assurance & Quality Control

CO1 Understand the role of Good Laboratory Practices (GLP)

CO2 Understand the role of Good Manufacturing Practices (GMP) in food industries.

CO3 Identify the elements that are part of the quality measuring process in the food industry.

CO4 Understand the importance and role of regulatory bodies

CO5 Understanding the importance of labeling of processed food products

BVFPE-416 Practical Paper pertaining to Technology of Pulse Processing

CO1 Identification and description of common pulses

CO2 Acquire the skills of the technologies behind pulses products

CO3 Understanding preparation techniques used in pulses industry

CO4 Performing various tests to evaluate the quality of pulses and pulses products

CO5 Students will learn techniques of fermentation and sprouting of pulses

BVFPE-417 Practical Paper pertaining to Quality Assurance & Quality Control

CO1 Identify the techniques of Good Manufacturing Practices (GMP) used in food industries.

CO2 Demonstrate labeling of cereal and pulses products

CO3 Identify the elements that are part of the quality measuring process in the food industry.

CO4 Understand the importance and role of regulatory bodies

CO5 Evaluation of shelf-life of cereal and pulse products.

NSQF Level-7 Production Manager For part -III (semester-V& VI)

- A Production Manger is responsible for production of food products and meeting quantity, quality and cost standards.
- A Production Manager is responsible for production of food products through the process of production planning, coordinating and controlling production process to achieve desired quantity and quality of products.
- A Production Manager must have the ability to read, write, communicate, plan, organize and prioritize. S/he must possess mathematical organizational and analytical skills, ability to concentrate, physical stamina, mechanical aptitude and trouble shooting skills and have an understanding of food safety standards and requirements.

Course outcome

BVG-033: Confectionary Technology

CO1 Understand the ingredients and techniques involved in the manufacturing process of sugar, toffee, chewing gums and chocolate.
CO2 Understand the status of confectionary industry in India.
CO3 Understand the technologies (equipment and process) for confectionary product preparations
CO4. Understand defects in confectionary
CO5 Utilization of by-products of sugar industry

BVFPE-514: Food Handling & Storage Technology

CO1 Understand the practices which are to be followed in food handling which directly contributes to the safety of food
CO2 Learn about food storage types and structures
CO3 Importance of pest control in food industry
CO4 Overview of material handling system and devices in food processing
CO5 Explain the conventional and modern storage structures

BVFPE-515: Food Fermentation Technology

CO1 An understanding of the basic components of Food Fermentation Technology and their principles
CO2 An understanding of the concept of different fermentation process.
CO3 Learn about manufacturing process of different fermentated milk products, fruits, vegetables and beverages.
CO4 Preparation of various fermentation products
CO5 Learning the advantages of fermented foods

BVFPE-516: Practical Paper pertaining to Food Handling & Storage Technology

CO1 Analysis of pests that are safety hazard to food processing plant
CO2 Identifying stored product pests
CO3 Handling of food and food products
CO4 Evaluation of quality assessment of stored grains
CO5 Checking the freshness of cereals during storage conditions

BVFPE-517: Practical Paper pertaining to Food Fermentation Technology

CO1 Preparation of various fermentation products
CO2 Testing of quality of fermented foods
CO3 Evaluating final products after fermentation
CO4 Checking aging of finished products
CO5 Recovery of fermented products using filtration techniques

BVG-032: Food Industry Waste Management

CO1 Understand various wastes from fruits and vegetable processing industry
CO2 Learn about various methods to tackle the food industry wastes in the food industry
CO3 Understanding of various waste treatment methods
CO4 Explain about waste management
CO5 Utilization of food processing industry waste

BVFPE-614: Food Production Engineering

CO1 Understand and comprehend the principle of unit operations

CO2 Understand basics of designing of food plant and storage system•

CO3 Familiarization with basic principles of refrigeration, freezing, heat and mass transfer, from food industrial point

CO4 Understanding the technological solutions of food processing and preserving

CO5 Identifying various equipments to be used according to norms and specifications

BVFPE-615: IPR & Entrepreneurship

CO1 Acquiring knowledge of Intellectual Property rights (IPR)

CO2 Understanding the protection of their inventions.

CO3 Understand the schemes of MOFPI in development of food industries

CO4 Learning innovative entrepreneurial skills

CO5 Understanding the growth of entrepreneurs

BVFPE-616 Practical paper pertaining to Food Production Engineering

CO1 Operation of various equipments

CO2 Understanding the design parameters of cold storage

CO3 Skilling in analyzing refrigeration load capacity

CO4 Understanding the effects of temperature on dehydrated food products

CO5 Understanding the concept of heat transfer

BVFPE-617 Practical paper pertaining to IPR & Entrepreneurship

CO1 Searching of various schemes from official website

CO2 Over viewing the food industry growth scenario in Punjab

CO3 Over viewing the food industry growth scenario in India

CO4 Over viewing of Government start up schemes for entrepreneurship

CO5 Filing of patents

B.Voc. Software Development

The whole course is focused on the skill of software development. This course engages the students in all aspects of software development. This course focuses on practical experience as students have to undergo industrial training. After completing the course the student can opt for a career in computer programming/software development/web development.

Programme Outcomes

After completing Bachelor of Vocation program in Software development, a student will be able to:

PO 1: Demonstrate the competencies for employability or to pursue higher education in fields of Computer Science and Information Technology.

PO 2: Apply technical and professional skills to find effective solutions by identifying, analyzing and formulating the real world problems.

PO 3: Become entrepreneurs by starting their own startup and make a meaningful participation in accelerating India's economy.

PO 4: Possess effective presentation and communication skills within the Professional, Social as well as Personal domain.

PO 5. Possess ability to access economical, environmental and social aspects along with updating technical skills for continuous self-development as a professional.

Programme Specific Outcomes

After completing Bachelor of Vocation program in Software development, a student will be able to:

PSO 1: Understand the principles and working of computer systems.

PSO 2: Possess diverse knowledge in the domain of Information Technology including Programming Languages, Data Structures & Algorithms, Web Designing & Development, Software Engineering & Testing, Networking, E-Commerce, Database Management, DSS, Open-Source platforms, etc.

PSO 3: Develop Software Projects using different languages/technologies.

Course Outcomes

BVG-038 Computer Fundamentals:

After completing this course the students will be able to:

CO-1: explain the fundamental concepts, application area, terminology related to Information Technology.

CO-2: generalize the working of hardware and software.

CO-3: outline recent trends in Information Technology.

CO-4: use operating system & office automation tools.

B.VSD-111 Programming using C:

After completing this course the students will be able to:

CO-1: explain the basic terminology used in computer programming, compiling and debugging.

CO-2: apply programming fundamentals like data types, operators, I/O functions, control structures.

CO-3: use arrays and strings.

CO-4: describe the concept and application of functions and storage classes.

CO-5: comprehend the concepts of dynamic memory allocations, user defined data types and file handling.

B.VSD-112: Web Designing using Html and Dhtml:

After completing this course the students will be able to:

CO-1: comprehend the basics of WWW and web designing.

CO-2: use text, fonts, colors, images, tables, hyperlinks and other elements of HTML to create static web pages.

CO-3: apply interactivity in web pages using the form element.

CO-4: demonstrate the working of components of DHTML like CSS, JavaScript in creating media-rich dynamic web pages.

B.VSD-113: Workshop - I and Practical lab (Based on B.VSD-112):

After completing this course the students will be able to:

CO-1: work on office automation software package for advanced documentation, creating efficient presentation and handling worksheets.

CO-2: create static web pages using HTML.

CO-3: create data input forms.

CO-4: create simple dynamic web pages using CSS and JavaScript along with HTML.

B.VSD-114 Software Lab-I (Based on B.VSD-111) :

After completing this course the students will be able to:

CO-1: demonstrate the working of the coding environment.

CO-2: gain hands-on experience by implementing programs in "C' language.

CO-3: implement programs using control structures, arrays, strings.

CO-4: implement programs using functions, structures, unions, pointers, etc.

BVG-044 Digital Electronics:

After completing this course the students will be able to:

CO-1: explain the digital and analog signals, logic gates.

CO-2: comprehend and apply boolean algebra, number systems and their conversions.

CO-3: describe the working mechanism of various combinational circuits.

CO-4: describe the working mechanism of various sequential circuits.

B.VSD-121 Fundamentals of RDBMS :

After completing this course the students will be able to:

CO-1: describe the fundamental concepts related to database, DBMS and RDBMS.

CO-2: comprehend E-R and other record based data models and normalization.

CO-3: explain Relational Data Model and describe the advanced concepts of Transactions, Concurrency Control, etc.

CO-4: use SQL and PL/SQL to manage relational databases.

B.VSD-122 Programming using C++:

After completing this course the students will be able to:

CO-1: comprehend the concept of object oriented programming systems.

CO-2: recognize the features and relative merits of C++ supporting object oriented programming.

CO-3: use object, class, constructor, destructors and inheritance.

CO-4: apply polymorphism by using overloading, overriding, etc.

CO-5: illustrate the usage of templates and expectation handling.

B.VSD-123 Software Lab-II (Based on B.VSD-121) :

After completing this course the students will be able to:

CO-1: install and use MySQL.

CO-2: create databases using MySQL.

CO-3: perform CRUD operations.

CO-4: manipulate database using PL/SQL procedures.

B.VSD-124 Software Lab-III (Based on B.VSD-122):

After completing this course the students will be able to:

CO-1: implement the concepts of classes & objects in C++.

CO-2: implement the concepts of constructors & destructors in C++.

CO-3: implement the concepts of inheritance & polymorphism in C++.

CO-4: implement the concepts of templates & expectation handling in C++.

BVG-023 Operating System:

After completing this course the students will be able to:

CO-1: understand basic operating system concepts, types, services.

CO-2: describe process management, memory management, CPU scheduling.

CO-3: appraise methods to handle file systems and disk-scheduling.

CO-4: use various features of Linux OS.

CO-5: familiarize with Cloud, Android and iOS.

BVG-019 Discrete Mathematics:

After completing this course the students will be able to:

CO-1: Use concepts and notations from discrete mathematics which are useful in studying and describing objects and problems in branches of computer science, such as computer algorithms, programming languages, cryptography, automated theorem proving, and software development.

CO-2: Use logical notation to define and reason about fundamental mathematical concepts such as sets, relations, functions, and integers.

CO-3: Evaluate elementary mathematical arguments and be capable of reasoning.

CO-4: Synthesize induction hypotheses and simple induction proofs.

CO-5: Apply graph theory models of data structures and state machines to solve problems of connectivity and constraint satisfaction.

BVG-29 Software Engineering:

After completing this course the students will be able to:

CO-1: understand software engineering and its needs.

CO-2: classify software development process models.

CO-3: understand the concepts of software project planning.

CO-4: demonstrate the use of a software engineering process life cycle and its various stages for developing software projects.

B.VSD-214 Java Programming:

After completing this course the students will be able to:

CO-1: comprehend the structure and model of the Java programming language, Java Development Kit (JDK), usage of OOP principles.

CO-2: understand concepts of interface, package, threads.

CO-3: use exception handling, event handling.

CO-4: use Swing to design GUIs.

CO-5: understand database connectivity using JDBC.

B.VSD-215 Data Structure & Algorithm:

After completing this course the students will be able to:

CO-1: comprehend concepts of data structures, algorithms.

CO-2: describe linear data structures like arrays, linked lists, stacks, queues.

CO-3: describe non-linear data structures like trees, graphs.

CO-4: apply various algorithms for the creation, insertion, deletion, searching, and sorting of various data structures.

B.VSD-216 Software Lab-IV (Based on B.VSD-214):

After completing this course the students will be able to:

CO-1: install and use JRE.

CO-2: implement the concepts of OOPS in Java.

CO-3: implement the interface, package, thread, in Java.

CO-4: create GUI using Swing.

CO-5: implement database connectivity using JDBC.

B.VSD-217 Software Lab-V (Based on B.VSD-215):

After completing this course the students will be able to:

CO-1: implement different data structures using C++

CO-2: implement insertion and deletion operations using C++.

CO-3: implement search operations using C++.

CO-4: implement sorting operations using C++.

BVG-020 Decision Support System:

After completing this course the students will be able to:

CO-1: comprehend decision-making process.

CO-2: classify decision models.

CO-3: understand Decision Support Systems (DSS) and their applications

CO-4: describe various DSS tools.

CO-5: familiarize with the Expert System.

BVG-024 Content Management System:
After completing this course the students will be able to:
CO-1: understand the role of content management technologies to organise and present web content.
CO-2: familiarize with the process of web hosting, getting domain name and web space for a new website.
CO-3: manage websites using cPanel and use local development servers like WAMP, XAMPP and LAMP for local website development and testing.
CO-4: create, deploy and manage websites using content management system-Joomla and its various features.
CO-5: create, deploy and manage websites using content management system-WordPress and its various features.

B.VSD-224 Web Development Using PHP and MYSQL:
After completing this course the students will be able to:
CO-1: understand the structure and model of the PHP language and its role in web development.
CO-2: write procedural PHP scripts using variables, operators, I/O functions, control structures, arrays, strings, functions, etc.
CO-3: write object oriented PHP scripts using classes and objects.
CO-4: embed PHP code in a web page.
CO-5: understand database connectivity with MySQL.

B.VSD-225 Software Testing Concepts and Tools:
After completing this course the students will be able to:
CO-1: investigate the reason for bugs and understand the principles in software testing to prevent and remove bugs.
CO-2: understand software testing processes in relation to providing quality in software development.
CO-3: understand the techniques of creating test plans, design test cases, prioritize and execute them.
CO-4: familiarize with manual testing, Agile methodology and automated testing tools.

B.VSD-226 Software Lab-VI (Based on B.VSD-224):
After completing this course the students will be able to:
CO-1: install, configure and use WAMP/XAMPP.
CO-2: create and run PHP scripts.
CO-3: create dynamic web pages using PHP and MySQL.
CO-4: create mini software project.

B.VSD-227 Software Lab-VII (Based on B.VSD-225):
After completing this course the students will be able to:
CO-1: create test cases for various scenarios.
CO-2: execute test cases.
CO-3: analyze results of testing.
CO-4: use automated testing tool Selenium.

BVG-043 Computer Networks:
After completing this course the students will be able to:
CO-1: describe the process of data communication.
CO-2: explain basic networking concepts, protocols and network types.
CO-3: identify different types of devices, media & their functions within a network.
CO-4: discuss OSI and TCP/IP reference models.
CO-5: describe various layers of OSI model.

BVG-047 E-Commerce:
After completing this course the students will be able to:
CO-1: comprehend the concept of E-Commerce and the importance of the Internet and WWW.
CO-2: classify E-Commerce models.
CO-3: describe the characteristics of online marketing.
CO-4: identify E-Payment systems, Mobile Commerce, E-Business portals.

B.VSD-311 Python Programming:
After completing this course the students will be able to:
CO-1: use programming constructs like variables, operators, I/O functions, control structures, functions, etc.

CO-2: apply data structures like lists, tuples, sets, dictionaries.
CO-3: comprehend and use Python modules.
CO-4: describe use of files and regular expressions for data analysis.

B.VSD-312 Web Development:

After completing this course the students will be able to:
CO-1: comprehend the features, components and architecture of .Net framework.
CO-2: describe features and usage of C#.
CO-3: use various web server controls of ASP.Net to create web applications
CO-4: illustrate the usage of ADO.Net for connecting web applications with databases.

B.VSD-313 Software Lab-VIII (Based on B.VSD-311):

After completing this course the students will be able to:
CO-1: install, configure and use Python IDLE.
CO-2: create and run Python scripts.
CO-3: perform data analysis using Python.
CO-4: use different modules in Python.

B.VSD-314 Software Lab-IX (Based on B.VSD-312):

After completing this course the students will be able to:
CO-1: install, configure and use Visual Studio.
CO-2: create and run C# programs.
CO-3: create web pages using ASP.net web server controls.
CO-4: create and deploy database driven web applications using ASP.Net, C#, ADO.Net.

B.VSD-321 Project:

Students will undergo industrial training of 6 months in their desired field. After completing this course the students will be able to:
CO-1: become an expert in one's chosen technology.
CO-2: become updated with all the latest changes in the technological world.
CO-3: to identify, formulate and model problems and find appropriate solutions.
CO-4: to develop real-time social/industrial software projects.

B.Voc Automobile

After Completing B.Voc, Students can apply for job in all Government sector like administrative services, banking services, Defence services, Supervisor in maintenance and Service stations, Automobile manufacturing industry, Private transport companies. As this course is a skill based program, there is a high demand for skilled persons abroad, so students of this course have good opportunities abroad. We know India is a developing country; industrial and manufacturing sector is under development, students can even explore becoming an entrepreneur in automobile sector.

The course offers following programme Outcomes to eligible candidates:

- **PO1:** A student is responsible for the repair and routine servicing and maintenance (including electrical and mechanical aggregates) of vehicles.
- **PO2:** A student is responsible for managing range of diagnosis and repairs with a wide range of specialized repair of mechanical, electrical and electronic faults.
- **PO3:** A student is responsible for managing advanced diagnosis and repairs of mechanical parts. The individual carries out all types of diagnosis of faults and repairs and is responsible for supervising work of other technicians/senior technicians.
- **PO4:** Acquaint themselves the latest skills and talents required to meet the industry demand and to become a competent global workforce.
- **PO5:** A student oversees service; repair and maintenance work in the workshop done as per the OEM guidelines and manage the work done by mechanics and other aggregate specialists within the expected time and cost to ensure minimum repeat complaints

Programme Specific outcome

- **PSO1:** Understand the basics of Automobile industry and its impact on the economy and the society.
- **PSO2:** Acquire adequate knowledge and skills on the trade so that they are ready to perform in the specified job role at each exit point of the programme.
- **PSO3:** Identify the suitable job roles and responsibilities for employment in the Automobile Sector.

SEMESTER-I

Course outcome

BVA 114: BASICS OF AUTOMOBILE

CO1: Know different types of automobiles and their manufacturers in India.
CO2 Understanding basic structure of automobile.
CO3 Nomenclature terms used in automobile industry.
CO4 Study of different component of automobile.
CO5 Understand basic engine working system.

BVA 115: AUTOMOBILE REPAIR AND MAINTENANCE

CO1 Knowledge of maintenance of vehicles for long life ability.
CO2 How to follow standard operation of using workshop tools during repairing process
CO3 Introduction to lubrication system of automobile components
CO4 Checking of electrical components for fault diagnosis.
CO5 Study of major/minor adjustment in each component of automobile.

BVA116: BASICS OF AUTOMOBILE (PRACTICAL)

CO1 Know different types of automobiles and their manufacturers in India.
CO2 Understanding basic structure of automobile.
CO3 Nomenclature terms used in automobile industry.
CO4 Study of different component of automobile.
CO5 Understand basic engine working system.

BVA117: AUTOMOBILE REPAIR AND MAINTENANCE (PRACTICAL)

CO1 Knowledge of maintenance of vehicles for long life ability.
CO2 How to follow standard operation of using workshop tools during repairing process
CO3 Introduction to lubrication system of automobile components

CO4 Checking of electrical components for fault diagnosis.
CO5 Study of major/minor adjustment in each component of automobile.

SEMESTER-II

After completing 1st year of this program, a student is responsible for the repair and routine servicing and maintenance (including electrical and mechanical aggregates) of vehicles and for managing range of diagnosis and repairs with a wide range of specialized repair of mechanical, electrical and electronic faults and this is considered as diploma in automobile.

Course outcome

BVG 052: ENERGY SOURCES FOR AUTOMOBILES

CO1 Distinguish the types of energy used in automobiles.
CO2 Characteristics of bio fuel used in automobile industry
CO3 Understanding mixture of bio fuel with hydrocarbon
CO4 Study the importance of conventional energy sources
CO5 Knowledge of fuel cells used in automobile industry

BVA124: ELECTRICAL REPAIR OF AN AUTOMOBILE

CO1 Basic terminology of direct current of electricity
CO2 Knowledge of battery system used in automobile
CO3 Understanding the working of alternator
CO4 Basic study of various electrical components such as lightning system
CO5 Faulty defects such as leakage are studied with their remedies.

BVA125: ELEMENTS OF AUTOMOBILE ENGINEERING

CO1 Familiarize with basic constructional frame unit of automobile.
CO2 Understanding the engine components with working.
CO3 Knowing the role of four strokes in diesel and petrol engines
CO4 Explaining the importance of steering system in automobile sector
CO5 Learning the characteristics of suspension system used in automobiles

BVA126: ELEMENTS OF AUTOMOBILE ENGINEERING (PRACTICAL)

CO1 Basic terminology of direct current of electricity
CO2 Knowledge of battery system used in automobile
CO3 Understanding the working of alternator
CO4 Basic study of various electrical components such as lightning system
CO5 Faulty defects such as leakage are studied with their remedies.

BVA127: ELECTRICAL REPAIR OF AN AUTOMOBILE (PRACTICAL)

CO1 Familiarize with basic constructional frame unit of automobile.
CO2 Understanding the engine components with working.
CO3 Knowing the role of four strokes in diesel and petrol engines
CO4 Explaining the importance of steering system in automobile sector
CO5 Learning the characteristics of suspension system used in automobiles

SEMESTER III & IV

After completion of 2nd year, a student is responsible for managing advanced diagnosis and repairs of mechanical parts. The individual carries out all types of diagnosis of faults and repairs and is responsible for supervising work of other technicians/senior technicians and a student is awarded with advance diploma in automobile.

Course outcome

BVA 234: AUTOMOBILE WORKSHOP MANAGEMENT

CO1 Study of resources used in automobile firms
CO2 How to follow service schedules for maintenance of automobile.
CO3 Knowledge of job orders in marketing of automobiles
CO4 Solving various assignment problems for assigning job roles
CO5 Understanding guidelines for workshop areas

BVA 235: AUTOMOBILE ENGINEERING-I

CO1 Basic knowledge of transmission system is gained
CO2 Understanding the working of clutch system for engaging gear in automobile
CO3 Study of air inlet and exhaust system in automobile

CO4 Knowing the importance of braking system
CO5 Understanding working of ABS (Anti Braking System)

BVA 236: AUTOMOBILE WORKSHOP MANAGEMENT (PRACTICAL)
CO1 Study of resources used in automobile firms
CO2 How to follow service schedules for maintenance of automobile.
CO3 Knowledge of job orders in marketing of automobiles
CO4 Solving various assignment problems for assigning job roles
CO5 Understanding guidelines for workshop areas

BVA237: AUTOMOBILE ENGINEERING-I (PRACTICAL)
CO1 Basic knowledge of transmission system is gained
CO2 Understanding the working of clutch system for engaging gear in automobile
CO3 Study of air inlet and exhaust system in automobile
CO4 Knowing the importance of braking system
CO5 Understanding working of ABS (Anti Braking System)

BVG 018: INDUSTRIAL ENGINEERING
CO1 Understanding role of industrial engineering in automobile industry.
CO2 Knowledge of tools and techniques involved in industrial engineering
CO3 A brief description of plant layout and its types.
CO4 Learning techniques of PPC (Production, Planning, Control) in industrial engineering
CO5 Understanding the role of Ergonomics in automobile industry

BVA 244: AUTOMOBILE ENGINEERING-II
CO1 Study of engine cooling system and their types
CO2 Understand various types of lubrication system
CO3 Learning the concept of clutch system and making adjustment of clutch unit
CO4 Identifying the engine assembly components in automobiles.
C**O5** study the basic structure of generator and alternator.

BVA 245: AUTOMOBILE MECHANICAL AND ELECTRICAL SYSTEMS
CO1 Understanding the basic terminology of mechanical and electrical components.
CO2 Knowledge of measuring instruments in automobile industry.
CO3 Explaining the role of sensors and actuators in automobile
CO4 Identifying the defects of lightning in automobile.
CO5 Study the working of lead acid battery.

BVA246: AUTOMOBILE ENGINEERING –II (PRACTICAL)
CO1 Study of engine cooling system and their types
CO2 Understand various types of lubrication system
CO3 Learning the concept of clutch system and making adjustment of clutch unit
CO4 Identifying the engine assembly components in automobiles.
CO5 study the basic structure of generator and alternator.

BVA 247: AUTOMOBILE MECHANICAL AND ELECTRICAL SYSTEMS (PRACTICAL)
CO1 Understanding the basic terminology of mechanical and electrical components.
CO2 Knowledge of measuring instruments in automobile industry.
CO3 Explaining the role of sensors and actuators in automobile
CO4 Identifying the defects of lightning in automobile.
CO5 Study the working of lead acid battery.

SEMESTER V & VI

After completing 3rd year, a student oversees service; repair and maintenance work in the workshop done as per the OEM guidelines and manage the work done by mechanics and other aggregate specialists within the expected time and cost to ensure minimum repeat complaints and is awarded with a degree in automobile.

Course outcome

BVG 034: MACHINING SCIENCE
CO1 Basics of shaping and planning for machining process.
CO2 Studying the effect of physical parameter such as cutting speed, depth of cut etc.

CO3 Understanding the milling process for machining of components
CO4 Knowing the importance of jigs and fixtures for holding work piece
CO5 Understanding the tool wear mechanism to reduce its effect on work piece.

BVG 036: MANUFACTURING TECHNOLOGY I

CO1 Study the basic casting process in manufacturing different components
CO2 Knowledge of modern molding machines used to prepare moulds of components
CO3 Identifying the milling cutters used for surface finishing of automobile components
CO4 Familiarization with single and multi point cutting tools for surface finish.
CO5 Throwing a light on different angles involved in cutting a work piece.

BVA 354: AUTOMOBILE WORKSHOP SUPERVISION

CO1 Study of supervision with objectives.
CO2 Understanding the role of supervisor in problem solving
CO3 Attaining capabilities and skills for development of team work
CO4 Developing technical and process management competencies in automobile industry
CO5 Enhancing employee motivational techniques

BVA 355 (VOCATIONAL) SERVICE AND REPAIR OPERATIONS

CO1 Sorting major and minor repair maintenance issues.
CO2 Studying basic concept of automotive business and dealership operations
CO3 Understanding customer complaint analysis and documentation
CO4 studying inventory control in automobile industry
CO5 knowing procedure for accidental repair of automobile

BVA 356: AUTOMOBILE WORKSHOP SUPERVISION (PRACTICAL)

CO1 Study of supervision with objectives.
CO2 Understanding the role of supervisor in problem solving
CO3 Attaining capabilities and skills for development of team work
CO4 Developing technical and process management competencies in automobile industry
CO5 Enhancing employee motivational techniques

BVA 357 SERVICE AND REPAIR OPERATIONS (PRACTICAL)

CO1 Sorting major and minor repair maintenance issues.
CO2 Studying basic concept of automotive business and dealership operations
CO3 Understanding customer complaint analysis and documentation
CO4 studying inventory control in automobile industry
CO5 knowing procedure for accidental repair of automobile

BVG 037: MANUFACTURING TECHNOLOGY II

CO1 Knowledge of powder metallurgy and its characteristics.
CO2 Reviewing the welding process with latest techniques.
CO3 Understanding the latest finishing techniques
CO4 Study of grinding process with applications
CO5 Study of latest developments in metal forming process

BVA 364: WORKSHOP MAINTENANCE AND SAFETY

CO1 Study basic techniques of workshop management
CO2 Familiar with warning signs and symbols in automobile workshop
CO3 Knowledge of record keeping practices
CO4 Learning safety precautions in each section of work place
CO5 Understanding of health and safety regulations

BVA 365: PERFORMANCE EVALUATION IN AUTOMOBILE WORKSHOP

CO1 Studying evaluation and its components.
CO2 Implementation of performance modeling
CO3 Learning basic assessment techniques.
CO4 Understanding methods of performance appraisal
CO5 How to follow customer satisfaction standards

BVA 366: WORKSHOP MAINTENANCE AND SAFETY (PRACTICAL)

CO1 Study basic techniques of workshop management
CO2 Familiar with warning signs and symbols in automobile workshop

CO3 Knowledge of record keeping practices
CO4 Learning safety precautions in each section of work place
CO5 Understanding of health and safety regulations

BVA 367 PERFORMANCE EVALUATION IN AUTOMOBILE WORKSHOP (PRACTICAL)

CO1 Studying evaluation and its components.
CO2 Implementation of performance modeling
CO3 Learning basic assessment techniques.
CO4 Understanding methods of performance appraisal
CO5 How to follow customer satisfaction standards