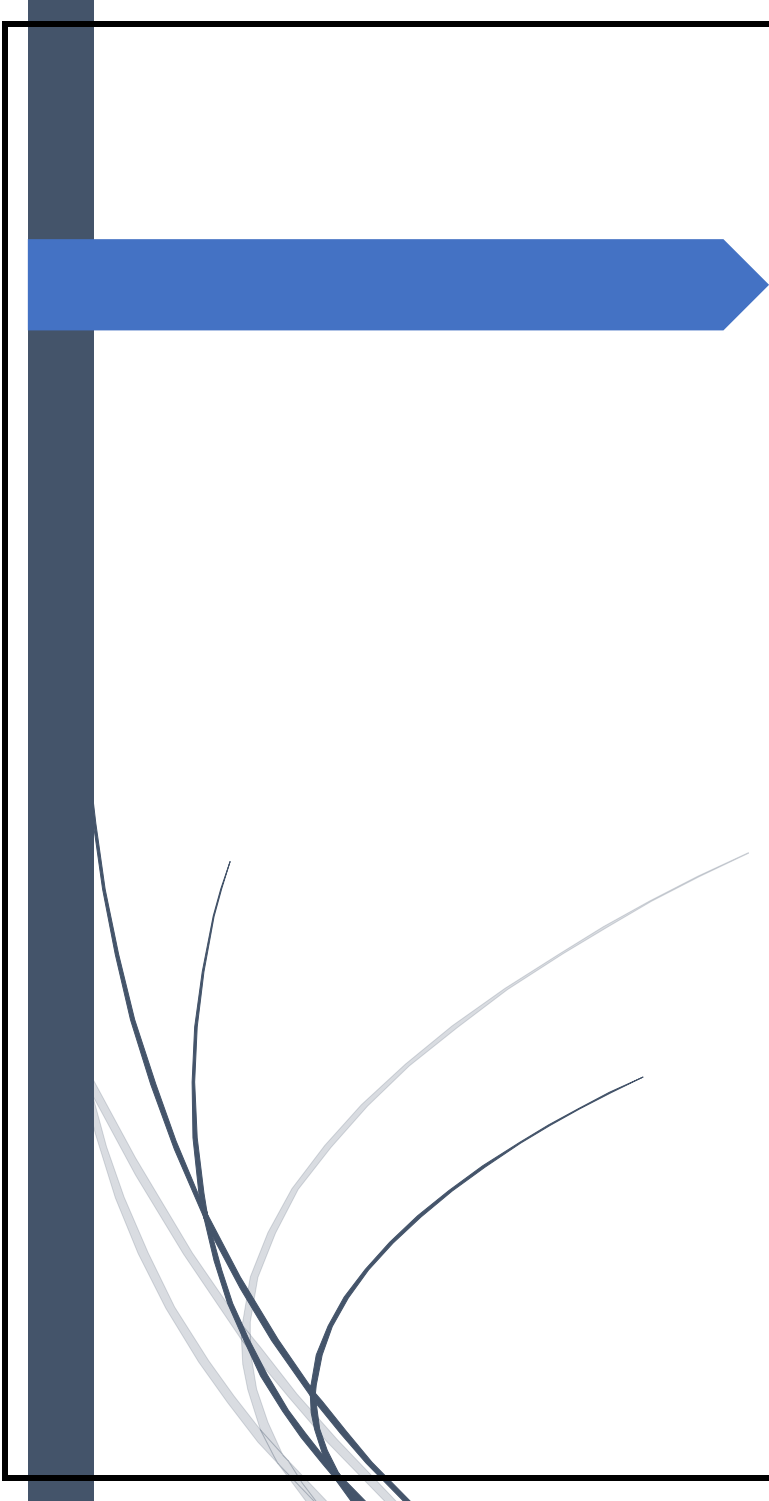




CO-PO Attainment B.Voc Automobile 2020-2023 Batch

Course Outcomes and Program Outcome Attainment for Bachelor of Vocation B.Voc Automobile Program

Course outcomes and program outcome attainment for a Bachelor of Vocation (B.Voc) in Automobile program typically include a blend of technical skills, theoretical knowledge, and practical experience relevant to the automotive industry. Here's a generalized outline of potential course outcomes and program outcome attainment for such a program:

Program Educational Outcomes (PEO):

The Objective of the B.VOC Automobile program are to produce graduates who:

1. Have a strong foundation in Automobile systems and Automobile Troubleshooting and Diagnostics with an ability to solve important problems in modern technological society as valuable, productive technicians and supervisors.
2. Have a broad based background to practice B.VOC Automobile in the areas of Automobile Manufacturers, Service Industry, Autotronics, Auto Ancillary industry and Government sectors meeting the growth expectations of stakeholders.
3. Have an ability to pursue higher studies and succeed in academic and professional careers.
4. Have the ability to address professional demands individually and as a team member communicating effectively in technical environment using modern tools.
5. Recognize the need for and possess the ability to engage in lifelong learning.
6. Will be sensitive to consequences of their work both ethically and professionally for productive professional career.

Program Outcomes (PO):

Vocational Education is education that prepares the students for specific trades, crafts and career sat various levels and scopes. It trains the students from a trade/ craft, technician or professional position in R & D organizations.

The Program Outcomes are the skills and knowledge which the students have at each exit level/at the time of graduation. These Outcomes are generic and are common to all exit levels mentioned in the programme structure.

PO 1. **Basic knowledge:** Apply knowledge of basic sciences, basic statistical, and fundamental engineering/ technology to solve the broad spectrum Automobile related problems.

PO 2. **Discipline knowledge & Problem Analysis:** Apply transboundary knowledge of a broad spectrum of technology that encompasses (but not limited to) electronics, mechtronics, electrical, robotics and control system to identify Automobile related problems.

PO 3. **Design Development of solutions:** Design / develop solutions for complex engineering or technological problems or challenges for Automobile related problems

PO 4. **Conduct Investigation of complex problems:** Use research based knowledge and research method including design of experiments/systems, analysis and interpretation of data and synthesis of information to provide valid conclusion

PO 5. **Modern tools:** Apply relevant and recent Automobile technologies and tools with an understanding of the limitations.

PO 6. **The engineer and society:** Assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to practice in field of Automobile.

PO 7. **Environment and sustainability:** Apply Automobile solutions for sustainable development practices in societal and environmental contexts.

PO 8. **Ethics:** Apply ethical principles for commitment to professional ethics, responsibilities and norms of the practice also in the field of Automobile.

PO 9. **Individual and team work:** Function effectively as a leader and team member in diverse/ multidisciplinary teams.

PO 10. **Communication:** Communicate effectively in oral and written form.

PO 11. **Project management and finance:** Demonstrate knowledge and understanding of the engineering and management principles and apply these to one's own work as a member and leader in a team, to complete project in any environment.

PO12. **Life-long learning:** Engage in independent and life-long learning activities in the context of technological changes also in the Automobile based industry.

Program Specific Objectives (PSO):

After 3-4 years of completion of the program, students will be able to -

1. Apply knowledge of motor vehicles, their manufacturing and servicing & repair technology in solving complex problems in automotive field.
2. Design systems for motor vehicles, their manufacturing & servicing & repair sectors.
3. Diagnose faults in motor vehicles and its systems.

B.Voc Automobile First Year**1. CO-PO-PSO Articulation Matrix for Course Code AUVOC 101: Linguistic Proficiency (English)**

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12		PSO1	PSO2	PSO3
Apply grammatical tools to formulate correct sentences in English.										H						
Apply concept of tenses to formulate correct sentences in English.										H						
Formulate different types of dialogues, expression of ideas/information in English										H						
Compose applications, reports, requests, responses, summary and comprehensions in English										H						

2. CO-PO-PSO Articulation Matrix for Course Code AUVOC 102 Basic Automobile Systems [ASC/N 1402]

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

3. CO-PO-PSO Articulation Matrix for Course Code AUVOC 103 Engineering Drawing

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

4. CO-PO-PSO Articulation Matrix for Course Code AUVOC 104 Basic Auto Electrical Systems

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

5. CO-PO-PSO Articulation Matrix for Course Code AUVOC 105 Laboratory Course I

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

[illegible]

6. CO-PO-PSO Articulation Matrix for Course Code VOC 106 Laboratory Project-I

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

7. CO-PO-PSO Articulation Matrix for Course Code AUVOC201: Industry Safety Practices

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12		PSO1	PSO2	PSO3	
Discuss basic postulates of safe work environment and practices							H							M			
Recognize threats of fatigue, accidents, hazards and Personal Protection							H							M			
Adapt safe working practices							H							M			
Correlate legal aspects of safety and necessary preventive measures in workplace							H							M			

8. CO-PO-PSO Articulation Matrix for Course Code AUVOC 202: Engine Electrical Systems

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

9. CO-PO-PSO Articulation Matrix for Course Code AUVOC 203 Fuel Injection and Ignition System

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

10. CO-PO-PSO Articulation Matrix for Course Code AUVOC 204 ENGINE CONTROL SYSTEMS

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

11. CO-PO-PSO Articulation Matrix for Course Code AUVOC205 Laboratory Course II

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

12. CO-PO-PSO Articulation Matrix for Course Code VOC 206 Laboratory Project-I

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

B.Voc Automobile Second Year
1. CO-PO-PSO Articulation Matrix for Course Code AUVOC301: Energy and Environment

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

2. CO-PO-PSO Articulation Matrix for Course Code AUVOC302- Suspension and Steering System

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

3. CO-PO-PSO Articulation Matrix for Course Code AUVOC303A: Tires and Braking System

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

5. CO-PO-PSO Articulation Matrix for Course Code AUVOC304A Automobile Transmission System

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

6. CO-PO-PSO Articulation Matrix for Course Code AUVOC304B Automobile Body Repair Technology

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

7. CO-PO-PSO Articulation Matrix for Course Code AUVOC305 Laboratory Project-III

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

[illegible]

8. CO-PO-PSO Articulation Matrix for Course Code AUVOC306 Major Project-III/Industrial Project-III

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

9. CO-PO-PSO Articulation Matrix for Course Code AUVOC401: Entrepreneurship Development

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

Course Outcome	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12		PSO1	PSO2	PSO3
Explain key concepts underpinning entrepreneurship and its application in the recognition and exploitation of product/ service/ process opportunities											H(2)			H		
Describe Key concepts underpinning innovation and the issues associated with developing and sustaining innovation within organizations											H(2)			H		
Plan creative strategies for pursuing, exploiting and developing new opportunities											H(2)			H		
Analyze basic Issues associated with securing and managing new business ventures											H(2)			H		

10. CO-PO-PSO Articulation Matrix for Course Code AUVOC 402 Autotronics

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

11. CO-PO-PSO Articulation Matrix for Course Code AUVOC 403 A Engine Diagnostic and Troubleshooting

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

12. CO-PO-PSO Articulation Matrix for Course Code VOC-403B Motor Vehicle Act and Regulations

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

13. CO-PO-PSO Articulation Matrix for Course Code AUVOC 404A Hybrid and Electric Vehicles

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

14. CO-PO-PSO Articulation Matrix for Course Code AUVOC 404B Vehicle Testing

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

15. CO-PO-PSO Articulation Matrix for Course Code AUVOC 405 Laboratory Course IV

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

16. CO-PO-PSO Articulation Matrix for Course Code AUVOC406 Major Project-III/Industrial Project-III

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

[illegible]

B.Voc Automobile Third year**Course Structure and Syllabus Sem V (Pattern2020)****Bachelor of Vocation (B. Voc)****in Automobile****Industrial On-Job Training – I**

Students should complete their Industrial On-Job in any industry for 12 weeks and submit a detailed (day-to-day basis) report of the same to the department. The student should also collect evaluation sheet (in sealed envelope) from the industry coordinator and submit to the department. Final evaluation of In-plant Training coursework will be based on evaluation by the industry coordinator and viva-voce examination.

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12		PSO1	PSO2	PSO3
Inplant Training	H(2)	H(2)	H(2)	H(2)	H(2)	H(2)	H(2)	H(2)	H(2)	H (2)	H(2)	H(2)		H(2)	H(2)	H(2)

Course Structure and Syllabus Sem VI (Pattern2020)**Bachelor of Vocation (B. Voc)****in Automobile****Industrial On-Job Training – II**

Students should complete their Industrial On-Job in any industry for 12 weeks and submit a detailed (day-to-day basis) report of the same to the department. The student should also collect evaluation sheet (in sealed envelope) from the industry coordinator and submit to the department. Final evaluation of In-plant Training coursework will be based on evaluation by the industry coordinator and viva-voce examination.

L= Low Correspondence; M= Moderate Correspondence; H= High Correspondence

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12		PSO1	PSO2	PSO3
Inplant Training	H(2)	H(2)	H(2)	H(2)	H(2)	H(2)	H(2)	H(2)	H(2)	H (2)	H(2)	H(2)		H(2)	H(2)	H(2)

Summary of the Course Outcome (CO) attainment for the mentioned courses:

Given the disruptions caused by the pandemic, the assessment of course outcomes became challenging. As a result, the course outcomes from the fourth semester, when the pandemic abated and examinations resumed, are outlined below:

AUVOC401: Entrepreneurship Development: This course focuses on key concepts of entrepreneurship and innovation, planning creative strategies, and managing new business ventures. The course outcomes have a high correspondence with PO9 and PSO1.

AUVOC 402 Autotronics: This course covers the electronics system for engines, usage of intelligent sensors, auxiliary system for electronics troubleshooting, and engine diagnosis using scanners. The course outcomes have a high correspondence with PO1 and PSO1.

AUVOC 403 A Engine Diagnostic and Troubleshooting: This course involves identifying and interpreting engine performance concerns, inspecting engine assembly for leaks, diagnosing unusual engine noise or vibration concerns, and diagnosing engine mechanical, electrical, electronic, fuel, and ignition concerns. The course outcomes have a high correspondence with PO1 and a moderate correspondence with PSO1.

VOC-403B Motor Vehicle Act and Regulations: This course interprets the Motor Vehicle Act and Traffic Rules, selecting suitable modes of transportation and vehicles as per requirement, and implementing the business of buying and selling vehicles. The course outcomes have a high correspondence with PO9 and PSO1.

AUVOC 404A Hybrid and Electric Vehicles: This course explains the basics of electric and hybrid electric vehicles, their architecture, technologies, and fundamentals. It also covers plug-in hybrid electric vehicle architecture, design, and component sizing, various electric drives suitable for hybrid electric vehicles, different energy storage technologies used for hybrid electric vehicles and their control, and different configurations of electric vehicles and its components. The course outcomes have a high correspondence with PO9 and PSO1.

AUVOC 404B Vehicle Testing: This course classifies various vehicle approval methods, describes vehicle testing procedures, measures engine pollution using exhaust gas analyzer, and describes Automobile Testing Standards. The course outcomes have a high correspondence with PO1 and PSO1.

AUVOC 405 Laboratory Course IV: This course diagnoses engine faults, cooling system faults, lubrication system faults, fuel supply system faults, and electrical system faults. The course outcomes have a high correspondence with PO6 and PSO1.

AUVOC406 Major Project-III/Industrial Project-III: This course involves critical thinking in problem solving, presentation and communication skills, report organization and writing skills, independent learning and information integration skills, project management skill, and working as an individual with support from a supervisor. The course outcomes have a high correspondence with PO1 and PSO1.

Industrial On-Job Training – I: This training requires students to complete their Industrial On-Job in any industry for 12 weeks and submit a detailed report of the same to the department. The training has a high correspondence with all POs and PSOs.

Industrial On-Job Training – II: This training requires students to complete their Industrial On-Job in any industry for 12 weeks and submit a detailed report of the same to the department. The training has a high correspondence with all POs and PSOs.

From Above Matrix, Overall Attainment Level for above courses are

AUVOC 401- Attainment Level 2

AUVOC 402- Attainment Level 2

AUVOC 402- Attainment Level 2

AUVOC 404- Attainment Level 2

AUVOC 405- Attainment Level 2

AUVOC 406- Attainment Level 2

Inplant Training I- Attainment Level 2

Inplant Training II- Attainment Level 2

Overall Attainment Level 2

Sd/-

Director

DDU Kaushal Kendra