



# MASTER COPY

## Gujarat Council of Vocational Training

### Gandhinagar



1. Name of Course:

**Auto Electrician**

N.C.O. No. for Skills Covered:  
(Please refer National Classification of  
Occupations -2004 available  
on www.dget.nic.in)


2. Engineering OR Non-engineering : **Engineering**

3. No. of students per batch : 10

4. Duration in Hours. : 176 Hrs

5. Duration in Month: 2 months @ 22 hours/Week

6. Examination Scheme:

No.	Name of Subject	Teaching Hours during full course.	Maximum Marks. (Excluding Sessional)	Minimum Marks required for Passing (Excluding Sessional).	Sessional Marks if any.
Subject-1	Trade Theory	36 Hrs	100	40	
Subject-2	Trade Practical	140 Hrs	300	180	

7. Entry qualification for Trainee:

Minimum entry qualification (Essential):	1. 8 <sup>th</sup> Pass with 1 year Automobile experience or 2. 10 <sup>th</sup> pass or 3. ITI certificate in Automobile Sector
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8. Minimum qualification for Trainer:

Minimum qualification (Essential):	1. Diploma in Automobile Engineering or 2. Diploma in Mechanical/Electrical Engineering with automobile industry experience
Desirable:	1. Diploma in Automobile Engineering or 2. Diploma in Mechanical/Electrical Engineering with automobile industry experience



*J. Shivan*

*[Signature]*



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### 9. Syllabus Committee Member:

Sr. No.	Name	Organization	Designation	Technical Qualification	Experience in Years	Signature
1.	A.K MEHTA	CET - Gujarat	DY.DIRECTOR	D.A.E	36	
2.	T. N. BHAVSAR	ITI, RADHANPUR	PRINCIPAL	D.A.E	23	
3.	C. B. ZALA	ITI, PATAN	PRINCIPAL	D.A.E	22	
4.	A. N. AGRAVAT	ITI, BHAVNAGAR	S.I. C.o.E Auto (ADVANCE)	D.A.E	25	
5.	A. S. TRIVEDI	ITI, RAJKOT	S.I - MECH..DIESEL	D.A.E	23	
6.	PARAS SHAH	ITI, TARSALI, VADODRA	S.I. C.o.E Auto (ADVANCE)	D.A.E	21	
7.	K. K. TRIVEDI	ITI, PALANPUR	S.I - MECH..DIESEL	D.A.E	7	
8.	H. B. PRAJAPATI	ITI, PATAN	S.I - MECH..DIESEL	D.A.E	7	
9.	J. N. CHANDARANA	VOLGA AUTO POINT, VADODARA	PROPRIETOR	D.A.E.	23	
10.	AMIT PATEL	SHREE GOPINATHJI AGENCIES, VADODARA	SERVICE MANAGER	D.A.E.	25	
11.	JAIJO ANTONY	ASTER MOTORS PVT. LTD, VADODARA	WORKS MANAGER	D.A.E.	8	

### 10. Skill achievement of trainee:

The trainee, after successful completion of training, will have following skills:

The successful candidate would be able to

1. Identify faults of wiring harness
2. Replace switches, lamps, relays and electrical gadgets
3. Test and charge lead acid battery
4. Overhaul alternator, starter motor and wiper motor
5. Diagnose trouble from power window system, central locking system and electric power steering
6. Install various auxiliary systems





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11. Approximate cost of Tools  
/ Equipments / Machinery for  
starting one batch of the course:

Rupees 411000

Reference Year  
2011

12. Area required for practical / Workshop for one batch.

42 Sq. Meter

13. Minimum Power connection required

01 K.W.approx

14.1 No of items in Standard list of Machinery:

06

14.1.1. Page no. from 04 to 04

14.2 No of items in Standard list of shop outfit :

46

14.2.1. Page no. from 05 to 07.

14.3 No of items in Standard list of Trainee Tool kit :

08

14.1.1. Page no. from 08 to 08.

\*\*\*\*\* FOR OFFICIAL USE \*\*\*\*\*

Approved by GCVT in ~~Governing Body~~ meeting on

: 06-09-2013

Syllabus implemented w.e.f. admission session

: Next session

Revision History :

1. Revision No- 01 Revision Date. 02/08/2013

2. Revision No.....Revision Date.

3. Revision No.....Revision Date.

*T. Bhasin*

*Shree*





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कोशलम् बलम्

Standard List of **Machinery - Equipment** / Shop-outfit / Trainee Toolkit for Trade of  
**Auto Electrician**

Sr. No.	Description of Item with detailed specifications	Item type i.e. Machinery / Equipment OR Shop Outfit OR Trainee Toolkit	Quantity Required per one Batch of Students	Quantity Required per one Batch of Students for Instructor	Total Quantity Required (Total of previous two columns)
1.	Auto electrical test bench	Machinery	01	0	01
2	Battery Charger 4 W 15Ah, 48V	Machinery	01	0	01
3	Rapid charger	Machinery	01	0	01
4	Battery load tester 4 W 32 Ah to 180 Ah	Machinery	01	0	01
5	Multi function tester	Machinery	01	0	01
6	Mock-up wiring board with detachable connections including power window and central locking, electric power steering and ABS cum EBD system.	Machinery	01	0	01

*T. Bhasan*



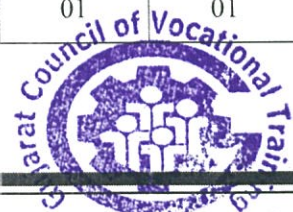


Auto Electrician

Sr. No.	Description of Item with detailed specifications	Item type i.e. Machinery / Equipment OR Shop Outfit OR Trainee Toolkit	Quantity Required per one Batch of Students	Quantity Required per one Batch of Students for Instructor	Total Quantity Required (Total of previous two columns)
1	Fixed head torque wrench 20 - 150 Nm	Shop Outfit	0	01	01
2	Pneumatic wrench (for socket spanner) 2.5 kgm torque	Shop Outfit	0	01	01
3	Pneumatic wrench (for socket spanner) 3.5 kgm torque	Shop Outfit	0	01	01
4	Socket set with 50 nos. screw driver/ square key/hex key/star key bits along with spinner handle, T-handle and extension bar(Metric)	Shop Outfit	01	01	02
5	Socket spanner set (6 to 32 mm, 12 divisions) along with T-handle, universal socket, L-handle, ratchet and extension bar	Shop Outfit	02	0	02
6	Socket spanner set (6 to 32 mm, 6 divisions) along with T-handle, universal socket, L-handle, ratchet and extension bar	Shop Outfit	0	01	01
7	Screw driver (Stubby) 5 cms	Shop Outfit	02	01	03
8	Philips screw driver (Stubby) 5 cms	Shop Outfit	02	01	03
9	Screw driver 10 cms	Shop Outfit	02	01	03
10	Philips screw driver 10 cms	Shop Outfit	02	01	03
11	Prick punch 15 cm	Shop Outfit	02	01	03
12	Long nose pliers (20 cms) with safety grips	Shop Outfit	01	01	02
13	Diagonal cutting pliers (20 cms) with safety grips	Shop Outfit	01	01	02
14	Cirelip pliers (Inner) 20 cms	Shop Outfit	01	01	02
15	Cirelip pliers (Outer) 20 cms	Shop Outfit	01	01	02

*J. B. Rawan*

*Self*





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16	Micrometer Outside 25- 50mm	Shop Outfit	0	01	01
17	Micrometer Outside 0- 25mm	Shop Outfit	0	01	01
18	Spark Plug tester "NEON" type	Shop Outfit	01	01	02
19	Electric soldering iron 75W	Shop Outfit	01	01	01
20	Desoldering tool	Shop Outfit	01	01	02
21	Hand file 20 cm second cut	Shop Outfit	01	01	02
22	Needle file (set of 12 - hand, flat, knife, round, half round, square, three square, crossing round edge joint, slitting, warding, barrette)	Shop Outfit	01	01	02
23	Ball pein hammer 0.5 Kg	Shop Outfit	01	01	02
24	Nylon faced hammer	Shop Outfit	01	01	02
25	Double ended spanner 6-32 mm (set of 12)	Shop Outfit	01	01	02
26	Ring spanner 6-32 mm (set of 12)	Shop Outfit	02	01	03
27	Curved jaw grip wrench 18 cm	Shop Outfit	01	01	02
28	Growler / Armature tester	Shop Outfit	0	01	01
29	Hydraulic puller cum separator set	Shop Outfit	0	01	01
30	Bench vice (Jaw width 10cm, Opening 14cm)	Shop Outfit	0	01	01
31	Bench vice (Jaw width 12.5cm, Opening 17cm)	Shop Outfit	0	01	01
32	2 Drawer work bench (W 150cm x D 60cm x H 85cm)	Shop Outfit	0	01	01
33	5 Drawer cabinet & shelved workbench (W 130cm x D 50cm x H 35cm)	Shop Outfit	0	01	01
34	Steel rule 30cm	Shop Outfit	02	01	03
35	5 Drawer roller cabinet with bottom compartment	Shop Outfit	02	0	02
36	Tool cabinet (180cm high x 90cm wide x 50cm depth) with 5 rack (3 part per rack)	Shop Outfit	0	01	01

*T. B. D. S.*

*K. S. G.*





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37	Relay tester	Shop Outfit	0	01	01
38	Digital multimeter	Shop Outfit	02	01	03
39	Alternator with vacuum pump	Shop Outfit	0	02	02
40	Starter motor	Shop Outfit	0	02	02
41	Lead acid battery 45Ah	Shop Outfit	0	01	01
42	Horn electric	Shop Outfit	0	02	02
43	Wiper motor	Shop Outfit	0	02	02
44	Clip on meter (DC) 20A to 200A	Shop Outfit	0	01	01
45	Power window motor	Shop Outfit	0	01	01
46	Oil can with flexible outlet tube (250 ml)	Shop Outfit	0	01	01

*Bhansari*

*Self*





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कोशलम् बलम्

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**Auto Electrician**

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1.	Screw driver 15 cm (Insulated)	Trainee Tool Kit	10	01	11
2	Philips screw driver 15 cm (Insulated)	Trainee Tool Kit	10	01	11
3	Combination pliers (20 cm) with safety grips	Trainee Tool Kit	10	01	11
4	Wire strippers (20 cm)	Trainee Tool Kit	10	01	11
5	Butane soldering tool	Trainee Tool Kit	10	01	11
6	Circuit tester	Trainee Tool Kit	10	01	11
7	Double ended spanner 6-17 mm (set of 6)	Trainee Tool Kit	10	01	11
8	Ring spanner 6-17 mm (set of 6)	Trainee Tool Kit	10	01	11

*T. B. Rawan*

*Sale*





Syllabus for Auto Electrician

Week No.	Theory	No. of Hours	Practical	No. of Hours	Remarks
1	<ul style="list-style-type: none"><li>-Introduction of trade and opportunity</li><li>-Safety and responsibility at work place</li><li>-Information of hand/ power tools</li><li>-Alternative &amp; direct current</li><li>-12V DC system</li><li>-Types of cable</li></ul>	4 hrs 30 min.	<ul style="list-style-type: none"><li>-Demonstration of hand/ power tools</li><li>-Demonstration of machineries</li><li>-Preparation of simple electric circuit</li><li>-Use of cable connector and soldering practice</li><li>-Use of multimeter</li></ul>	17 hrs 30 min.	
2	<ul style="list-style-type: none"><li>-Information about current, voltage, resistance, conductor and insulator</li><li>-Types of lamp</li><li>-Battery, its types and construction</li></ul>	4 hrs 30 min.	<ul style="list-style-type: none"><li>-Study of wiring harness and lighting system</li><li>-Testing and charging of battery</li><li>-Head beam alignment</li></ul>	17 hrs 30 min.	
3	<ul style="list-style-type: none"><li>-Construction and working principle of alternator</li><li>-Types of alternator</li><li>-Trouble shooting of alternator</li></ul>	4 hrs 30 min.	<ul style="list-style-type: none"><li>-Dismantling and assembling of alternator</li><li>-Trouble diagnosis and testing of alternator</li></ul>	17 hrs 30 min.	
4	<ul style="list-style-type: none"><li>-Construction and working principle of starter motor</li><li>-Types of starter motor drive</li></ul>	4 hrs 30 min.	<ul style="list-style-type: none"><li>-Dismantling and assembling of starter motor</li><li>-Trouble diagnosis and testing of starter motor</li></ul>	17 hrs 30 min.	
5	<ul style="list-style-type: none"><li>-Cable colour code</li><li>-Wiring harness</li><li>-Wiring components i.e. Switch, fuse, connector, relay</li><li>-Horn, its construction and working</li></ul>	4 hrs 30 min.	<ul style="list-style-type: none"><li>-Preparation of wiring harness</li><li>-Connecting components with harness</li><li>-Adjustment of horn</li></ul>	17 hrs 30 min.	
6	<ul style="list-style-type: none"><li>-Wiper motor and wind shield washer</li><li>-Power window</li><li>-Central locking system</li><li>-Anti theft device and immobilizer</li></ul>	4 hrs 30 min.	<ul style="list-style-type: none"><li>-Replacement of wiper blades</li><li>-Removing and refitting of wiper motor</li><li>-Trouble diagnosis and repairing of wiper motor</li><li>-Trouble diagnosis and replacement of parts in power window system</li><li>-Trouble diagnosis and replacement of parts in central locking system</li></ul>	17 hrs 30 min.	

*P. B. B. B.*





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7	-Antilock braking system with electronic brakeforce distribution and traction control, construction and parts -Air bag and belt with pretensioner -Electronic parking brake -Gradient control system -Electric power steering	4 hrs 30 min.	-Study of various safety devices -Scanning and trouble diagnosis of ABS and air bag system	17 hrs 30 min.	
8	-Auxiliary system ie. Car tape, reverse camera, additional light, video system, their fitting procedure and precautions -Industrial visit	4 hrs 30 min.	-Fitting of auxiliary system -Industrial visit	17 hrs 30 min.	

*Bhawa*

*Salep*

