

CERTIFICATE COURSE IN TWO WHEELER TECHNICIAN

SYLLABUS



COMMUNITY COLLEGE

[Funded by UGC, New Delhi]

The Gandhigram Rural Institute – Deemed University
Gandhigram – 624 302 Tamil Nadu

NCVT Approval**Effective from 18-August-2015**

MSDE-19/03/2015-CD
Government of India
Ministry of Skill Development & Entrepreneurship
Directorate General of Training (DGT)

Shram Shakti Bhawan, New Delhi
Dated: 18th August, 2015

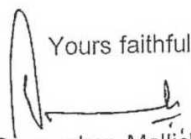
To,
Shri Ravinder Singh
Vice President (Strategy Planning)
India Yamaha Motor Pvt Ltd,
A3-Industrial area,
Noida-Dadri road, Surajpur,
Uttar Pradesh -201306

Subject: Approval to run courses as per Flexi MoU between DGT, MSDE and India Yamaha Motor Pvt Ltd concerning "High Employment Potential Courses for specific needs of industry"- reg

Sir,
The Sub Committee of NCVT on 'Norms & Courses' in its meeting held on 17th July, 2015 has approved to run the following course through flexi MoU:

S.no	Name of the Course	Duration	Qualification	Scheme
1.	Certificate Course in Two Wheeler Technician	1 Year (2 Semesters)	08th std Age - Above 17 Yrs.	Craftsmen Training Scheme

You are requested to implement this course in your academy as per Flexi MoU signed between DGT, MSDE and India Yamaha Motor Pvt Ltd.

Yours faithfully

(Deepankar Mallick)
Dy. Director General (Training)

GANDHIGRAM RURAL INSTITUTE-DEEMED UNIVERSITY

Gandhigram – 624 302, Dindigul District, Tamil Nadu

COMMUNITY COLLEGE

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Structure and Content of the Certificate Course in Two Wheeler Technician

[Offered by GRI + Yamaha Training School]

1. Introduction:

The Gandhigram Rural Institute (GRI) - Deemed University, Gandhigram is one of the pioneering institutions working for rural development and preparing human resources for managing rural development during last four decades. The GRI has a separate Department of Lifelong Learning and Extension which is mainly working for the vocational training for skill development. In this context, focus is on the “skills and knowledge” needed to work with people in various employment settings, in the rural and semi-urban areas, particularly in the unorganized sector and also in the Non-governmental organizations. In this background, Institute has established a Community College (CC) with the support of the UGC, New Delhi.

The Community College is to increase accessibility of a large number of individuals in the rural community, while offering vocational skills development as well as traditional coursework, to locally providing opportunities to the learners to move directly to the employment sector. Currently, the Community College (CC) is offering a Diploma in Two Wheeler Mechanism and Maintenance.

The GRI has signed an MoU with Yamaha Motors to establish a Yamaha Training School [YTS] to train rural youth to provide basic skills training relating to the servicing of Two Wheelers. The training school has been established in the GRI campus and is ready. The training will lead to a Certificate in Two Wheeler Technician. This will be a joint certification programme of GRI and Yamaha Motors.

2. Objectives:

The main aim of course is

1. to train rural youth in servicing and maintenance of two wheelers
2. to create opportunities for rural youth by imparting education and skill to promote their employability
3. to equip the trained youth to become self-employed [micro-enterprise]

3. Structure of the Programme:

Semester	Course Code	Name of the Course	Theory	Practical	Total Credits	Total Practical hours / per week	Duration of Exam Hours	Evaluation in Percentage		Total Marks	Pass Mark [Combined of 40%Theory and 60% Practical]
								Theory	Practical		
FIRST	16YTSC0101	Fundamentals of Two Wheeler Workshop	2	2	4	4	2	40	60	100	50
	16YTSC0102	Servicing of Two Wheelers	2	2	4	4	2	40	60	100	50
	16YTSC0103	Customer Relationship Management	3	1	4	2	2	60	40	100	50
	16YTSC0104	Internship for Practical Training	0	3	3	6	2	0	100	100	50
					15	16		140	260	400	
SECOND	16YTSC0205	Industrial Placement for Hands-On-Experience**			15	30	3	0	100	100	50
		Total			30			140	360	500	

** - Practical Examination will be conducted by GRI

4. Methodology:

The Certificate programme is of two semester duration and follows the credit system. In the first semester the students are introduced to the essential elements of two wheelers and appropriate practice in the form of practical training is provided in the first semester. There are four courses in the first semester. Each of these courses have both Theory and Practical components. The evaluation and Grading will be done as per GRI pattern. Each course will be evaluated for a maximum of 100 marks – Combining both Theory and Practical components. Being a skill based programme, the passing minimum will be 50%.

Teaching and Training process include the following:

- Classroom sessions
- Demonstration
- Hands-on-Experience in the industry
- ICT enabled interaction sessions
- Industry Placement
- Exposure Visit to Industry
- Study Material in Bi-lingual English and Tamil

5. Admission related matters

- ◆ The minimum educational qualification for admission into Certificate Programme of Yamaha Training School (YTS) will be 10th standard pass or equivalent including NIOS from any recognized board or university.
- ◆ Medium of instruction will be in Bi-lingual - English and Tamil.
- ◆ Reservation to SC, ST, OBC, Differently-Abled and Service Personal categories will be made as per the Government of India (GoI) Norms
- ◆ There shall be no age bar for admission in the YTS; however, candidates should have completed 17 years.
- ◆ The selected students have to pay Course Fee as per GRI Norms

6. Examination related matters

- The Controller of Examination, GRI shall conduct the End Semester Examination [ESE] as is being practiced in the case of other Certificate / Diploma Programmes.
- The course teacher will be the examiner.
- The Industry Experts, if required, can be invited for conducting the practical Examinations.
- For theory papers assessment is based End Semester Examination only.
- A student will be declared to have passed in a course when she / he has scored 40% in Theory and 60% in Practical.
- In the Case of student absent / failed in a subject in a semester examination, she / he has to write both Theory and Practical examination for that subject during the subsequent semesters.
- A student has to pass in course with maximum attempts of 5 times [1+4Times]
- The second semester practical examination includes - 40% for Internship Report and 60% for practical examination.

7. Industry collaboration:

1. Networking with identified Two-Wheeler Dealers, Workshops, Technical Institutions in and around Dindigul to provide Practical Training and opportunities for hands-on experience.
2. Experts available in these industrial units / Technical Institutions will be invited as Guest Faculty
3. Signing of Memorandum of Understanding [MOU] by the Community College with identified Two Wheeler Dealers and Workshops.
4. During the first semester students are placed in the industrial units / workshops for one month Internship.
5. During the second semester for practical training, students will be placed in the Industry under Industry Placement Programme [IPP].

8. Fees Structure in Rs.

1. Per Semester	
Tuition fee	600
Examination fee	1000
Library fee	75
Games fee	20
Laboratory fee	750
Sub Total	2445
2. One Time Fee	
Group Health Insurance	200
Health Service	200
Khadi	300
Calendar	80
Sports Tournament Fund	100
Smart Card	150
TC and CC	50
Student Welfare Fund	100
Sub Total	1180
3. Caution Deposit [Refundable]	1000
Total Fees Payable	4625

9. Content of the Course:

FIRST SEMESTER

COURSE -1 : FUNDAMENTALS OF TWO WHEELER WORKSHOP

Course Code -16YTSC-0101

Credits: Theory – 2; Practicals – 2

Marks-100

Objectives: The main purpose of this course is to make acquainted with the Workshop situation and also to provide the students opportunities to get know about the Fundamental of the two wheeler servicing workshop and its environment.

Unit 1 – Explanation in Workshop & Demo Role Play

Introduction to 2 wheelers & history – Birth of Motorcycle & What is motorcycle – Safety –Safety in Workshop – Safety Precautions – usage of PPE – Accident and cause of industrial Accidents – types of Hazardous and usage of fire extinguishers – MOTORCYCLE & DRIVING LESSON – introduction – Basic riding posture – Starting taking off Stopping – Braking – Gear change – Cornering - Uphill and Downhill - 5S & its Benefits - Customer receiving & Vehicle Inspection – Vehicle Delivery – Professional Technicians.

Unit 2 – Tools and Equipments

Basic operation tools –Socket – Wrenches –Screw drivers –Hammers - How to use tools – Machine tools – Chisel, Flies, etc -Special tools Types and Usages – Measuring tools- Vernier Calliper, Micrometer, Bore Dial Gauge – Multimeter – Battery Charger – Fuel injector Cleaning Machine.

Unit 3 – Yamaha Product Features

Yamaha Product features of R15, FZ FI, Ray, Alpha, YBR, etc., Familiarization with Yamaha Technology – YRCS –SOHC –FI System, D-Compression, etc

Unit 4 – Pre Delivery Inspection & Job Card Preparation

Importance of Pre Delivery Inspection, Objective of Pre Delivery Inspection, Basic steps of Pre Delivery Inspection – Customer vehicle observation slip – Vehicle Checking before job card making – job card making – job allocation

Unit 5 – Basic Level First Service

Description of Wheels & Tires types – selection of tires – ply rating – inflation pressure and carrying capacity – Brake system – Suspension System – Power Transmission – Exhaust system

Reference Books

1. G.B.S. Narang, 2003, "Automobile Engineering", 10th Reprint, Khanna Publishers, New Delhi.
2. Basic Automotive Service [2&3 wheeler], 2010, NIMI, Government of India, Chennai
3. B. Kumaran, 2010, Motor Mechanic, Kumaran Publishers, Chennai
4. Ganesan, 2005, Internal Combustion Engines, Laxmi Publications [P] Limited, New Delhi
5. Dennis Bailey and Keith Gates, 2009, Bike Repair & Maintenance [For Dummies], Wiley Publishing, Canada
6. Barry Hollebeak, 2011, Automotive Electricity and Electronics Classroom and Shop Manual, Pack Today Technician Publishing, USA
7. Tony Foale, 2001, Two Wheeler Motorcycle Handling and Chassis, Tonbridge, Spain

COURSE – 2: SERVICING OF TWO WHEELERS

Course Code -16YTSC0102

Credits: Theory – 2; Practicals – 2

Marks-100

Objectives: The course aims at introducing the basic knowledge of servicing all type of two wheelers including auto-electrical system. Provide opportunity to learn servicing by hands-on-experience in the industrial setting through electrical instruments.

Unit 1 – Basic Checkup

Identify the parts & General servicing of Two Wheeler- washing- cleaning- oiling- greasing and lubricating- Tracing the A.C /D.C electrical circuit in a two wheeler- checking horn- head light- indicator and replacing if necessary.

Unit 2 – Inlet problems

Dismantling the air cleaner- cleaning- inspecting- cleaning fuel tank- servicing carburetor- rectifying causes for engine not starting- high fuel consumption- Description of carburetor- fuel system type and location- Fuel tank.

Unit 3 – Starting Problems

Starting engine- tuning for slow speed- checking smoke and setting for exhaust gas emission measurement as per norms. Used by Tachometer.

Unit 4 – Engine Assembly

Dismantling the unserviceable engine- cleaning and inspecting the parts- checking engine bore piston rings- connecting rod- bearings- crankshaft- assembling all the parts and measures the gaps. Engine Timing setting and Valve Timing setting of Engine.

Unit 5 - Clutch Assembly

Adjusting clutch lever free play- removing clutch assembly from Two-wheeler- cleaning and inspecting parts. Replacing defective parts. Fitting clutch assembly. Repair work of Automatic clutch and automatic transmission used in motor rakes.

Reference Books

1. Basic Automotive Service [2&3 wheeler], 2010, NIMI, Government of India Chennai
2. Tony Foale, 1996, Two wheeler Motorcycle Handling and Chassis Design, Spain.
3. Dennis Bailey and Keith Gates, 2009, Bike Repair & Maintenance [For Dummies], Wiley Publishing, Canada
4. Barry Hollembeak, 2011, Automotive Electricity and Electronics Classroom and Shop Manual, Pack Today Technician Publishing, USA
5. Tom Denton, 2004, Automotive Electrical and Electronic System, ELSEVIER, UK
6. Service Manuals of Manufacturers of Indian Two & Three wheelers.

COURSE – 3: CUSTOMER RELATIONSHIP MANAGEMENT

Course Code -16YTSC0103

Credits: Theory – 3; Practicals – 1

Marks-100

Objective: To enable the students by providing basic skills required for maintaining good relationship with customers through effective Communication in service sector.

Unit -1: Introduction to Customer Support

Importance of Customer - Types of Customers - their needs - Issues in dealing with the customers- Importance of maintaining good relations with customers in Service providing sector.

Unit - 2: Communication Skills for Customer Support

Intra personal communication and Body Language - Inter personal Communication in Customer Relationships. Features of an effective Communication. Verbal and non-verbal Communication. Barriers and filters. Listening and active listening. Customer satisfaction - Feedback from Customers.

Unit -3: Customer Relationship Skills

Leadership Skills - Team work and public speaking with customer - Importance of maintaining good interpersonal relationship with Customer and co-workers - Effective communication in service delivery.

Unit -4: Personality Traits in delivering Service

Self confidence - Attitude - Working in Group - Time Management - Effective Planning in service delivery - Working towards Goal - Meditation and concentration techniques in the stress situation.

Unit- 5: Practical Exercise:

Role playing in Workshop - Public speaking- Interview - work in a Team - Group Discussion - Discussion on Case Studies from shop Floor and Industry situation

Reference Books

1. Stephen P. Robbins and Mary Coulter, 2012, Management [Eleventh Edition], Pearson Education, New Jersey
2. Balasubramaniyan. K, 2005, Essence of Customer Relationship Management, GIGO Publishing
3. Balaji , 2002, Service Marketing and Management, S.Chand Publishing
4. A. Sagadevan and H. Peeru Mohamed, 2002, Customer Relationship Management - A Step-By-Step Approach, Vikas Publishing, New Delhi
5. Kaushik Mukerjee, 2007, Customer Relationship Management, PHI Learning Private Limited, New Delhi.
6. Jill Dyche, 2001, The CRM Handbook: A Business Guide to Customer Relationship Management 1st Edition, Addison-Wesley, New York

COURSE – 4: INTERNSHIP FOR PRACTICAL TRAINING

Course Code -16YTSC0104

Credits: Practicals – 3

Marks-100

Objective

To provide practical training in the industrial environment to the students and create opportunity to gain Hands-on-Experience

Methods

This course offered in the campus and also placing the students in the Industrial units for a period of one month at the end of first semester

1. Demonstration of Engine – Types, Classifications , major parts and terms
2. Demonstration of Engine Components – Function and working -CVT
3. Overhauling of engine Mechanism and engine systems
4. Overhauling of CVT & Carburetor
5. Cooling System
6. Lubrication system & Engine oils
7. Fuel system
8. Fuel Injection system
9. OJT at Dealership

Strategies and Process

1. Record Work- Laboratory Work – Attending Practical Training
2. The students will be placed in the identified two wheeler workshop for practical training and Hands-on-Experience
3. Attendance will be jointly maintained by YTS and particular industrial unit
4. Daily Dairy has to be prepared by the students
5. Final Report has be submitted along with Record Work Book
6. Examination will be based on these documents
7. Jointly assessed by YTS and particular industrial unit

SECOND SEMESTER

COURSE – 5: INDUSTRY PLACEMENT FOR HANDS-ON-EXPERIENCE

Course Code- 16YTSC-0205

Credit - 15

Marks-100

Objective

To provide practical training in the industrial environment to the students and create opportunity to gain Hands-on-Experience

Strategies and Process

8. Record Work- Laboratory Work – Attending Practical Training
9. The students will be placed in the identified two wheeler workshop for practical training and Hands-on-Experience
10. Attendance will be jointly maintained by YTS and particular industrial unit
11. Daily Dairy has to be prepared by the students
12. Final Report has be submitted along with Record Work Book
13. Examination will be based on these documents
14. Jointly assessed by YTS and particular industrial unit

The students should get exposed to the following:

- Two wheeler chassis frame.
- Two wheeler SI Engine
- Two wheeler CI Engine.
- Valve timing and port timing diagram
- Brake and Clutch adjustment as per specification.
- Dismantling and assembling of two wheeler engine.
- Dismantling and assembling of two wheeler gear box.
- Two wheeler chain test.
- Two wheeler electrical systems.

10. Panel of Experts

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