

**Curriculum
For
Certificate in Finishing and Joining
Techniques in Ceramics
Six Months Duration Course
Code:VI81S007
(2013)**

SCHEME OF STUDIES

Finishing and Joining Techniques

Sr #	Modules	Theory Hours	Practical Hours	Total Hours
1	Module 1 Quality Assurance of Green Ware	34	141	175
2	Module 2 Peeling of the ware	26	154	180
3	Module 3 Cutting and Edging	24	96	120
4	Module 4 Joining of the Ware	26	149	175
5	Module 5 Refinishing and Quality Control	15	70	85
6	Module 6 Safety Rules	15	50	65
TOTAL HOURS		140	660	800

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NAME OF COURSE:

Finishing and Joining Techniques in Ceramics

Introduction of the Course

The Prime objective of the course is to train semi-skilled and skilled workers for local pottery/tableware/ceramics Industry. The following main topics (Modules) have been included in the course:-

1. Quality Assurance of Green Ware
2. Peeling of the ware
3. Cutting and Edging
4. Joining of the ware
5. Finishing and Quality Control of the ware
6. Health and Safety at workplace

This course is based on the competencies gained for workers. After this course worker/trainee will be skilled in “Finishing and Joining” in pottery/ceramic industry

OVERALL OBJECTIVE OF COURSE

1. The prime objective of this course of is to provide local ceramic industry with semi-skilled & skilled worker to work as Finisher and Joiner.
2. Semi-skilled and skilled worker produced by this training would help to reduce unemployment and poverty in the society
3. This training course is designed to create job opportunities for those primary pass students who fail to continue their schooling due to various social and economic factors.
4. This training program will provide opportunity to those who want to equip themselves with such knowledge and skills which will be helpful for their employment in local ceramics industry.

5. Further, this Curriculum is developed by considering the requirements of local market and need of the trade enabling the pass-outs to meet the job market to reduce the shortage of Semi Skilled and Skilled workers in this area.
6. Provide technical and vocational training basis which reflects the requirements of the industry.

COMPETENCIES GAINED AFTER COMPLETION OF COURSE

After completion of this course the student should be able to:

1. Explain the basic ceramic terms used in the whole process of Finishing and Joining Techniques.
2. Describe materials, their usage & properties.
3. Express the knowledge of proper moisture content required for finishing.
4. Explain the different cutting methods used for green ware cutting
5. Basic principles of joining
6. Explain the different joining techniques
7. Express the knowledge for joining complex shapes
8. Express the knowledge of the quality control
9. Explain the different finishing methods
10. Express the knowledge of Finishing and Joining faults and their remedies.
11. Explain all safety & health hazards involved during Finishing and Joining
12. Perform the filling in the given ware
13. Make paste for Joining

14. Apply the paste for the surfaces to join
15. Perform the joining of the desired ware
16. Make handles for joining by pressing, by coiling and by slip casting techniques
17. Identify the defective wares and able to remove the defects in the green ware
18. Measure, Cut and join the ware according to the demand of the product.
19. Work according to sketches or instructions
20. Prepare the surface of ware for Joining according to the shape of ware
21. Identify and maintain the moisture content during working with the ware
22. Handle various tools with safety.
23. Sharp and set the various types of tools of Finishing
24. Inspect and rectify the faults in finished wares.
25. Equip trainees with correct and efficient use of related tools
26. Sharpening and setting of various tools of joining

JOB OPPORTUNITIES AVAILABLE IMMEDIATELY AND IN THE FUTURE

- Pottery Industry
- Sanitary Industry.
- Training/teaching Institutes
- Tableware Industry
- Self employment.

TRAINEE ENTRY LEVEL

The trainee selected should be minimum Primary / Literate qualification.

MINIMUM QUALIFICATION OF TRAINER

1. Industrial experience of five years (minimum)

Or

Certificate course in respective field with two years of industrial experience

MEDIUM OF INSTRUCTION

Medium of instruction would be Urdu/Punjabi, but English would also be there, as the terminologies, standards, tools and equipment name are in English and they have to be learn them in the same language.

TIME FRAME OF ASSESSMENT

Duration of Course	Six Months
Total Hours	800 Hrs
Theory Hours	136 Hrs
Practical Hours	664 Hrs

SEQUENCE OF THE MODULES

Module 1: Quality Assurance of Green Ware

Module 2: Peeling of the Ware

Module 3: Cutting and Edging

Module 4: Joining of the Ware

Module 5: Finishing and Quality Control

Module 6: Safety Rules

Finishing and Joining Techniques –Curriculum Overview

Module Title and Aim	Learning Units	Theory ¹ Days/hours	Workplace ² Days/hours	Timeframe of modules / sequence
<p>Module 1: Quality Assurance of Green Ware</p> <p>Aim: To check the quality and identify the defects of the given ware for joining and finishing</p>	<ol style="list-style-type: none"> 1. Check the green ware for cracks 2. Check the shape and form of the ware 3. Perform the checking for bubbles/pinholes in the body of green ware 4. Perform the weight check of the ware 5. Check the ware after joining 	34hrs	141	175
<p>Module 2 : Peeling of the ware</p> <p>Aim: visulaly check and make necessay arrangement to level the ware and fill the ware with slip to remove the defects</p>	<ol style="list-style-type: none"> 1. Make the corners of ware equal 2. Level the base of the ware 3. Dry the Ware upto leather hard 4. Prepare the ware for cutting 	30	150 hrs	180hrs
<p>Module 3 Cutting and Edging</p> <p>Aim: To Learn different Methods of Cutting</p>	<ol style="list-style-type: none"> 1. Make outline for cutting in the ware 2. Cutting the ware 	30hrs	90 hrs	120

¹ Learning hours in training provider premises

² Training workshop, laboratory and on-the-job workplace

<p>Module 4: Joining of the Ware Aim: To Enable the trainee to understand the different joining techniques and able to join the relevant wares</p>	<ol style="list-style-type: none"> 1. Prepare the clay mixture/paste for ware joining 2. Clean the parts of the ware to be joined 3. Apply the paste on the parts to be joined 4. Press the two surfaces together softly 5. Perform the cleaning after joining 6. Make sure the moisture remain in green ware during the process of finishing and joining 7. Ensure uniformity of moisture in Greenware at the time of joining 	25hrs	150hrs	175hrs
<p>Module 5: Re- Finishing and Quality control of the ware Aim: To Perform the final finishing of the final ware</p>	<ol style="list-style-type: none"> 1. Perform the final finishing of the ware 2. Perform the Quality Check of the ware. 	25 hrs	60 hrs	85hrs
<p>Module 6: Safety Rules Aim: To apply safety requirements and standards</p>	<ol style="list-style-type: none"> 1. Wear work clothes 2. Wear Personal protective equipments 3. Prepare the workplace 4. Deal with work & health hazards. 	15	50	65

Curriculum Contents (Teaching and Learning Guide)

Module – 1 : Quality Assurance of Green Ware

Objective of the Module:To check the quality and identify the defects of the given ware for joining and finishing

Duration: 175 hours Theory: 34 hours Practice: 141 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
1. Check the shape and form of the ware.	Able to identify the shape of mould and final ware	<p>Knowledge of:</p> <p>shape line of ware Shape of ware to be finished trimming</p> <p>Ability to:</p> <p>compare the shape of ware with actual design</p>	Th:9 hrs Pr:35hrs	- Models,Wall Charts, Multimedia, White Board, Stationary, Green ware pieces Moulds	Class room Workshop
2. Check the green ware for cracks	Able to check the existing ware if there are any cracks	<p>Knowledge of:</p> <p>Green ware</p> <p>Defects in the product Precision accuracy of shape</p> <p>Ability to:</p> <p>Identify green ware products Distinguish between the cracks or defaults in the product</p>	Th:9 hrs Pr:35hrs	Wall Charts, White Board , Stationary, Green ware pieces,	Class Room WorkShop
3. Perform the checking for bubbles/pin	Able to check the pinholes in the ware Is able to identify the bubbles (if any) in the	<p>Knowledge of:</p> <p>Describe the Pinholes Disadvantages of pin holes in</p>	Th: 8hrs Pr: 36hrs	Wall Charts, Multimedia, White Board, Stationary,	Class Room Workshop

holes in the body of green ware	green ware	green ware Ability to: identify common quality failures like pin hole		Table	
4. Perform the weight check of the ware	Able to check the weight on weighing scale	Knowledge of: Final Weight of the ware Final shape of the ware Weighting Scale Ability to: Measure weight of the ware	Th:8 hrs Pr:35hrs	White Board, Stationary, Weighting Balance	Classroom Workshop

Module 2 : Peeling of the ware

Objective of the Module:After completing this module trainee will be able to visually check and make necessary arrangement to level the ware and fill the ware with slip to remove the defects

Duration: 180hours Theory: 26 hours Practice: 154 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
1. Make the corners of ware equals	Able to make ware symmetrical	<p>Knowledge of:</p> <p>Describe the Basic Mould shape Techniques of symmetry</p> <p>Ability to:</p> <p>Identification of size Rounding/Designing Corners</p>	Th:12 Pr:74	<p>Wall Charts, , White Board, Stationary, - knife - foam - Plastic Tub</p>	Classroom / Workplace
2. Level the base of the ware	Able to base leveling with surface	<p>Knowledge of:</p> <p>Basic Mould and model</p> <p>Ability to:</p> <p>Level the base</p>	Th:7 Pr:40	<p>- Models, , White Board, - knife - foam - Plastic Tub - Glass Sheet</p>	Classroom / Workplace
3. Dry the Ware	Able to identify the dry/wetting	<p>Knowledge of:</p> <p>Describe bone dry and leather hard wares Moisture content</p> <p>Ability to:</p> <p>Identify Moisture Identify bone dry ware Identify leather hard ware</p>	Th:7 Pr:40	<p>- White Board, Stationary, - Dryer - Blower - Plastic Tub -</p>	Classroom / Workplace

Module 3 : Cutting and Edging

Objective of the Module:To Learn different Methods of Cutting.

Duration: 120 hours Theory: 24 hours Practice: 96 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
1. Make outline for cutting in the ware	Able to check the groves	<p>Knowledge of: tools used for the cutting Design knowledge of the ware</p> <p>Ability to: Identify the proper place of cutting Make Scrating lines in the Ware Add texture to the ware</p>	Th:12hrs Pr:48	<ul style="list-style-type: none"> - knife - foam - tool kit 	Workplace ClassRoom
2. Cutting the ware	Able to identify the places for holes and outlines for cutting in i.e. lamps, teapots etc	<p>Knowledge of: Cutting Techniques smooth cutting trouble Shoot Knowledge of the final ware</p> <p>Ability to: Identify the proper place to cut Use the cutting tools Make hole/designing in the ware</p>	Th:12hrs Pr:48hrs	<ul style="list-style-type: none"> - Apron - knife - foam - sponge 	Workplace

Module 4 :Joining of the Ware

Objective of the Module: To Enable trainee to undertsand the different joining techniques and able to join the relavent wares

Duration: 175 hours Theory: 26 hours Practice: 149 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
1. Prepare the mixture/paste for ware joining	Is able to formulate the mixture / paste	<p>Knowledge of:</p> <p>Materials of mixture Formulation of Joining paste Physical Properties of materials and mixture/paste Weighing Balance Adjustment of water level</p> <p>Ability to:</p> <p>Understand different mixing techniques Make the mixture/paste for joining Use weighing Balance</p>	Th: 5hr Pr:30 hrs	Slip body Moulds to Dry the Slip Plastic Tub	Workplace
2. Clean the parts of the ware to be joined	Able to identify the portion / part of the ware to be joined	<p>Knowledge of:</p> <p>Importance of Cleaning Techniques for Cleaning Tools used for cleaning</p> <p>Ability to:</p>	Th: 5hr Pr:30 hrs	<ul style="list-style-type: none"> - foam - duster - brush - Plastic Tub - Knife 	Classroom Workshop

		<ul style="list-style-type: none"> -Wet the wares to be joined properly -Perform wetting with sponge - Clean the ware 			
3. Apply the paste on the parts to be joined	Able to join one, two & three ware	<p>Knowledge of: Design knowledge of ware Joining of complicated forms Paste Properties</p> <p>Ability to: Understand the joining parts of the ware Apply paste on the ware</p>	Th:6hrs Pr:29 hrs	<ul style="list-style-type: none"> - Slip body -Sponge - 	Workshop
4. Perform cleaning the after joining	Able to hold pressure on the ware after joining for cleaning	<p>Knowledge of: tools used for cleaning Precautions during the process</p> <p>Ability to: Clean the ware with sponge</p>	Th: 5hr Pr:30 hrs	<ul style="list-style-type: none"> - Sponge - Duster - knife 	Workshop
5. Make sure the moisture remain in green ware during the course of finishing and Joining	Moisture retention exercise after joining Adjustment of Moister if required	<p>Knowledge of: Drying time of the ware Troubleshooting</p> <p>Ability to: -Add moisture -Visual inspect the ware for moisture</p>	Th: 5hr Pr:30 hrs		Workshop

Module 5: Re-Finishing and Quality Control

Objective of the Module: .. To Perform the final finishing of the final product

Duration: 85 hours Theory: 15 hours Practice: 70 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
1. Perform the final finishing of the ware	Able to refinish and fine finish of the ware	<p>Knowledge of:</p> <p>Finishing and the quality control Describe steps in finishing Finishing required for different forming process Describe tools for finishing Final shape of the ware</p> <p>Ability to:</p> <p>Understand different finishing tools Make final Cutting the spare line and seems Make final trimming of the ware Perform smoothness with sponge</p>	Th:5hrs Pr:10 hrs	- Water - Foam	Workshop
2. Perform the quality check of the ware	Is able to assess the quality of product	<p>Knowledge of:</p> <p>Tools and Equipments used</p> <p>Ability to:</p>	Th:5hrs Pr:30 hrs		Workshop

		<p>Make smoothness in the ware with the wood sand paper, foam and sponge</p> <p>Grinding the ware with stone</p>			
3. Quality Control	<p>Able to finish the ware according to the design</p>	<p>Knowledge of:</p> <p>Acceptable quality of the finished green ware</p> <p>Standard of the ware</p> <p>Ability to:</p> <p>Understand the quality control</p> <p>Perform sorting of the finished ware as per Design and requirement</p>	<p>Th:5hrs</p> <p>Pr:30 hrs</p>	-	Workshop

Module 6: Safety Rules

Objective of the Module: .. To apply safety requirements and standards

Duration: 65 hours Theory: 15 hours Practice: 50 hours

Learning Unit	Learning Outcomes	Learning Elements	Duration	Materials Required	Learning Place
1. Wear safety clothes	<p>Is able to understand the importance of person safety</p> <p>Is able to work while wearing the aprons & dust masks etc</p> <p>Is able to explain the advantages of the safety equipment</p>	<p>Knowledge of:</p> <p>Describe the Importance of safety</p> <p>Importance of safety Cloths</p> <p>Ability to:</p> <p>-Labels the tags</p> <p>-Wear safety cloths</p>	<p>Th:4hrs</p> <p>Pr:13hrs</p>	<p>- Apron</p> <p>- Dust Mask</p>	<p>Class Room</p> <p>Workshop</p>
2. Wear Personal protective equipments	<p>Is able to know the safety equipment used</p> <p>Is able to understand and purpose of each equipment</p>	<p>Knowledge of:</p> <p>Describe Personal protective equipments</p> <p>Describe the safety of the different parts of the human body</p> <p>Ability to:</p> <ol style="list-style-type: none"> 1. Understand personal protective equipment 2. Perform protection of hands and arms 3. Wear safety glasses 	<p>Th:4hrs</p> <p>Pr:13hrs</p>	<p>- Apron</p> <p>- Dust Mask</p> <p>- Safety Shoes</p> <p>- Safety Glasses</p>	<p>Class Room</p> <p>Workshop</p>

		<p>4. Wear hearing protection like earmuff, ear plugs</p> <p>5. Wear safety mask</p>			
3. Prepare the Work place	Able to know the importance of the safe work place and its advantages	<p>Knowledge of: Housekeeping and work place preparation to start the job Safe working environment and its advantages Relation of organized workplace & Performance</p> <p>Ability to:</p> <ol style="list-style-type: none"> 1. Select and identify the tools required 2. Place and handle the tools and equipment involved 	Th:4hrs Pr:13hrs	<ul style="list-style-type: none"> - White/ Black board - Working Table - Information sheets - Exercise sheets - Work sheets - Clean Equipment 	Class room Workshop
4. Deal with work & health hazards	<p>Able to understand the work & health hazards</p> <p>Able to know about the possible injuries</p> <p>Able to know about the first aid</p>	<p>Knowledge of: Health hazards Possible work hazards & injuries First Aid provision and Emergency response</p> <p>Ability to:</p> <ol style="list-style-type: none"> 1. Remain composed and provide first aid to the fellow who is suffering 2. Respond and call in the first aid 	Th:3hrs Pr:11hrs	<ul style="list-style-type: none"> - White/ Black board - OHP - Transparenc - Information sheets - Exercise sheets - Work sheets - First aid box 	Class room Workshop

Assessment Template

Module 1:- : Quality Assurance of Green Ware

Learning Units	Theory hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
1. Check the green ware for cracks	34	141	<ol style="list-style-type: none"> 1. Explain the Ceramics and its common types 2. Illustrate green ware 3. Describe different forming techniques 4. Explain defects found in green ware 5. Demonstrate to identify the defects like crack in the given ware 	Short Question and answer Task	
2. Check the shape and form of the ware.			<ol style="list-style-type: none"> 6. Describe the importance of the given ware 7. Demonstrate to check the given ware shape and form compare to the final product 	Task	
3. check for bubbles/pinholes in the body of green ware			<ol style="list-style-type: none"> 8. Explain the pin holes defects in green ware 9. Demonstrate to identify these defects on the given ware 	Short Question and answer, Oral test, Task	
4. Perform the weight check of the ware			<ol style="list-style-type: none"> 10. Explain the importance of Weight checking 11. Perform the weight check of the ware 	Oral test, Task	

Module 2:- Peeling of the Ware

Learning Units	Theory hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
1. Make the corners of ware equals	26	154	Demonstrate to make corners of the given ware equals	Short Question and answer, Task	
2. Level the base of the ware			Demonstrate to leveling of the ware	Short Question Task	
3. Dry the Ware			Explain the terms used for the dry wares Demonstrate to wet the ware if necessary	Oral test,	

Module 3:- Cutting and Edging

Learning Units	Theory hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
4. Make outline for cutting in the ware	24	96	<p>Explain the different cutting techniques used for green ware Describe the tools used for the designing</p> <p>Demonstrate to make outline for the cutting of the given ware of the given pattern by any methods</p>	Short Question and answer, Task	
2. Cutting The Ware			<p>Explain how to make the hole technique Demonstrate to perform the cutting and making hole of the given ware</p>	Short Question and answer, Task	

Module 4:- Joining of the Wares

Learning Units	Theory hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
3. Prepare the mixture/paste for ware joining	26	149	Define Joining of green ware and its different techniques Explain the joining of handles Explain the formation of handles by different techniques Define and explain the joining paste Perform the making of Handle by different techniques Make the joining paste	Short Question and answer, Oral test, Task	
4. Clean the parts of the ware to be joined			Explain the importance of cleaning during joining Demonstrate to clean the given wares for joining	Short Question and answer, Oral test, Task	
5. Apply the paste on the parts to be joined			Explain joining of complicated forms Demonstrate to apply the paste on the wares to be joined	Short Question and answer, Oral test, Task	
6. Perform the cleaning after joining			Explain the importance of cleaning of wares after joining Perform the test to the cleaning of wares after joining	Short Question and answer, Oral test, Task	
7. Make sure the moisture remain in green ware during the course of finishing and joining			Explain the moisture content Perform the moisture measurement test of the joined ware	Short Question and answer, Oral test, Task	

Module 5:- Finishing and Quality Control

Learning Units	Theory hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
8. Perform the final finishing of the ware	15	70	<ol style="list-style-type: none"> 1. Explain finishing with respect to quality control 2. Write down the steps of finishing for different green wares 3. Explain the finishing tools used for a given job 4. Perform the finishing of the given ware 	Short Question and answer Task	
9. Perform the quality check of the ware			<ol style="list-style-type: none"> 5. Explain the importance of the soft finishing of the wares 6. Explain the tools used for soft finishing 7. Perform the file of the given green ware 	Task	
10. Quality Control			<ol style="list-style-type: none"> 8. Explain the quality control in the finished green ware 9. Perform the quality control tests on the given wares 	Short Question and answer, Oral test, Task	

Module 6: Follow Safety Rules

Learning Units	Theory hours	Workplace Days/hours	Recommended formative assessment	Recommended Methodology	Scheduled Dates
11. Wear safety clothes	15	50	<ul style="list-style-type: none"> 10. Explain the Importance of safety 11. Explain the Importance of safety Cloths and its types 12. Wear work clothes 	Short Question and answer, Oral test, Task	
12. Wear Personal protective equipments			<ul style="list-style-type: none"> 1. Explain the Personal protective equipments 2. Explain the safety of the different parts of the human body 3. Demonstrate to wear Personal protective equipments 		
13. Prepare the workplace			<ul style="list-style-type: none"> 1. Know how to prepare workplace for various jobs involved in executing one project. 2. Prepare the workplace 		
14. Deal with work hazards, accidents & injuries			<ul style="list-style-type: none"> 1. Explain work hazards, injuries & required first aid 2. Explain the hazards and safety measures involved in the operation of various machinery 3. Deal with work hazards, accidents & injuries 		

List of Tools, Machinery & Equipment

Name of Trade	Finishing & Joining Techniques
Duration	6 Months (800 hrs)

Sr. No.	Name Equipment / Tools/Machinery
1.	Sponge
2.	Tool Kit
3.	Knife/Blades
4.	Thib
5.	Wheel
6.	Plastic Tub
7.	Regmal
8.	Safety Glasses
9.	Weighing scale
10.	water
11.	Apron
12.	Wood Sand paper
13.	Mould

Reference Books

1. Henrik Norsker, The Self-Reliant Potter: Refractories and Kilns, Dt. Zentrum für Entwicklungstechnologien GATE, 1987 , ISBN 3-528-02031-8
2. Lorette Espi, Step by Step Pottery & Ceramics, Crescent Books, New York
3. Susan Peterson, The Craft and Art of Clay, Overlook Press, 1996
4. Dara Billington, The technique of Pottery, BT Batsford Ltd, London
5. Jeff Zamek, Safety in the Ceramics Studio: How to Handle Ceramic Materials Safely

Contributions for Development of This Curriculum

DACUM Working Group

Rana Muhammad Asif Glass & Ceramics Pottery Center Shad rah	Mr. Ashan Sajjid Emco Industries
Mr. Sohail Iqbal Leader Ceramics	Mr. Ghulam Murtaza Service Center
Mr. Azam Kahlid Training Complex Ceramics Development & Center	Mr. Muhammad Adrees Service center
Mr. Muhammad Afzal Emco Industries	Mr. Muhammad Manshah Service center
Mr. Shaid Latif Leader Ceramics	Mr. Jamil Service center
Mr. Rafiqan Bibi Service center	Mr. Nazia Service center

Curriculum Developer

Mr. Muhammad Waleed Jehangir Manager Service/Project Manager GCT for Glass, Ceramics & Pottery, TEVTA Punjab.

Technical Expert

Mr. Muhammad Waleed Jehangir Manager Service/Project Manager GCT for Glass, Ceramics & Pottery, TEVTA Punjab.

National Curriculum Review Committee (NCRC) Members

Syed Jawad Ali Shah	Syed Irshad Hussain
Mr. Muhammad Abdul Ghaffar	Mr. Muhammad Waleed

DACUM Facilitator

Ms. Hina Fouzia Manager Curriculum, TEVTA Punjab, Lahore

DACUM Coordinator

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