DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY

CIRCULAR NO.SU/Sci./B.Voc./Sem.-I & II/Syllabus/69/2015

It is hereby inform to all concerned that, on the recommendation of the Chairman, Ad-hoc Board in Centre for Vocational Education and Training, the Hon'ble Vice-Chancellor has accepted the **"Revised syllabus of B.Voc. Jewellery Design & Gemology, Ist & IInd Semester under Credit and Grading System"** on behalf of the Academic Council under Section-14[7] of the Maharashtra Universities Act, 1994.

This is effective from the Academic Year 2015-16 & onwards as appended herewith.

All concerned are requested to note the contents of the circular and bring notice to the students, teachers and staff for their information and necessary action.

University Campus,
Aurangabad-431 004.
REF.NO.SU/SCI../B.VOC./
2015/12364-73
Date:- 23-09-2015.

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Director,
Board of College and
University Development.

Copy forwarded with compliments to:-

1] The Principals, affiliated concerned colleges,
Dr. Babasaheb Ambedkar Marathwada University

Copy to :-

1] The Controller of Examinations,
2] The In-Charge, E-Suvidha Kendra, [Professional Unit], Rajarshi Shahu Maharaj Pariksha Bhavan, Dr. Babasaheb Ambedkar Marathwada University,
3] The Section Officer, [B.C.S. Unit],
4] The Programmer [Computer Unit-1] Examinations,
5] The Programmer [Computer Unit-2] Examinations,
6] The Record Keeper.

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Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.

SYLLABUS OF

B.Voc. First Year
(Jewellery Design & Gemology)
Semester I & II

[Effective from - 2015-16]

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad

Curriculum for B.Voc. (Jewellery Design & Gemology)

UNIVERSITY GRANTS COMMISSION (UGC) PROGRAM UNDER THE NATIONAL SKILLS QUALIFCATIONS FRAMEWORK (NSQF)

1. Introduction

It has been a long felt necessity to align higher education with the emerging needs of the economy so as to ensure that the graduates of higher education system have adequate knowledge and skills for employment and entrepreneurship. The higher education system has to incorporate the requirements of various industries in its curriculum, in an innovative and flexible manner while developing a holistic and well groomed graduate.

Ministry of HRD, Government of India has issued a notification for National Skills Qualifications Framework (NSQF). Under the National Skills Development Corporation, many Sector Skill Councils representing respective industries have/are being established. One of the mandates of Sector Skill Councils is to develop National Occupational Standards (NOSs) for various job roles in their respective industries. It is important to embed the competencies required for specific job roles in the higher education system for creating employable graduates.

The University Grants Commission (UGC) has launched a scheme on skills development based higher education as part of college/university education, leading to Bachelor of Vocation (B.Voc.) Degree with multiple exits such as Diploma/Advanced Diploma under the NSQF. The B.Voc. Programme is focused on universities and colleges providing undergraduate studies which would also incorporate specific job roles and their NOSs along with broad based general education. This would enable the graduates completing B.Voc. to make a meaningful participation in accelerating India's economy by gaining appropriate employment, becoming entrepreneurs and creating appropriate knowledge.

2. Objectives

2.1 To provide judicious mix of skills relating to a profession and appropriate content of General Education.
2.2 To ensure that the students have adequate knowledge and skills, so that they are work ready at each exit point of the programme.
2.3 To provide flexibility to the students by means of pre-defined entry and multiple exit points.
2.4 To integrate NSQF within the undergraduate level of higher education in order to enhance employability of the graduates and meet industry requirements. Such graduates apart from meeting the needs of local and national industry are also expected to be equipped to become part of the global workforce.
2.5 To provide vertical mobility to students coming out of 10+2 with vocational subjects.

3. Curriculum

3.1 The curriculum in each of the years of the programme would be a suitable mix of general education and skill development components.

3.2 The curriculum is based on credit based system. The credits for general education and skill development component are as shown with NSQF levels

Year	No. of credits for General Education component	No. of credits for Skill development component	Exit point Award	Corresponding NSQF level
Year - 1	24	36	Diploma in Jewellery Design & Gemology	Level 5
Year - 2	24	36	Advance diploma in Jewellery Design & Gemology	Level 6
Year - 3	24	36	B.Voc.(Jewellery Design & Gemology)	Level 7
Total	**72**	**108**		

4. Eligibility

A Candidate shall be admitted to the I year of the B.Voc.(Jewellery Design & Gemology) degree course only if he/she satisfies the following condition:

1. He/ She must have passed the higher secondary (multipurpose) examination conducted by H.S.C. board Government of Maharashtra with Science/Commerce/Arts Or an Examination of any statutory University and Board recognized as equivalent thereto.

   OR

   He/She must have passed examination prescribed at the end of second year of the junior college conducted by the H.S.C. board, Government of Maharashtra with English, Second language, Physics, Chemistry, Mathematics or an examination recognized as equivalent thereto.

   OR

   Candidate having offered prescribed vocational course (MCVC) with Computer techniques/I.T./Electronics

OR

Three years Diploma Course in engineering conducted by the board of technical Education, Maharashtra State.

2. He/ She must have passed at qualifying examination.

A candidate who has passed the B.Sc.(Jewellery Design & Gemology) examination of this university may be allowed to present himself subsequently at the degree examination in a subject or subjects other than those he has taken earlier provided that he puts in three years of attendance as a regular candidate for First, Second and Third year in the subject or subjects concerned excluding compulsory English, Second Language and remaining optional subject(s). A candidate shall not be allowed to appear for such examination if he has passed the higher examination.

5. Award of Degree/Diploma

As this course is multi-exit course, the award levels are

1. The **Degree of Bachelor of Vocation B.Voc (Jewellery Design And Gemology)** shall be conferred on candidate who has pursued a regular course of study consisting of SIX semesters in the relevant subject as prescribed and has appeared at the end examination and passed under the credit based system in all the examination prescribed for the Degree course in the faculty.

2. The **Advance Jewellery Design And Gemology** shall be conferred on candidate who has pursued a regular course of study consisting of FOUR semesters in the relevant subject as prescribed and has appeared at the end examination and passed under the credit based system in all the examination prescribed for the Advance Diploma course in the faculty.

3. The **Diploma in Jewellery Design And Gemology** shall be conferred on candidate who has pursued a regular course of study consisting of TWO semesters in the relevant subject as prescribed and has appeared at the end examination and passed under the credit based system in all the examination prescribed for the Diploma course in the faculty.

6. The class structure and pattern of the examination

- The Number of students in a theory class shall not exceed 50.
- Maximum number of students in a batch for practical in first four semesters shall consist of 20 students and for fifth & sixth semester the batch shall consist of 15 students.
- The rules for admission to the subsequent (next) semesters will be the same as per the University guidelines.
- For Each course the concerned teacher should conduct Class tests after completion of 15 and 20 lectures.
- The Theory and Practical Examinations will be conducted by the University at the end of each semester.
- The Practical Examination will be conducted by the university and examiners will submit the marks in the prescribed format to the university.

7. The infra-structure and Teaching Staff to run the course will be as follow:-

The graduation is very important phase in the life of our young students. The college responsibly is not only to deliver a quality syllabus based education, but also to motivate them to be a good healthy citizen. In this direction, the college must have sufficient facilities to run the course. A guideline is listed below. The College must have following minimum facilities:

Infrastructure:

1. One Class room to accommodate 50 students. (approximately 250 sq.ft.)
2. A well equipped computer laboratory having a LAN system of minimum 30 nodes and having internet connectivity with broad band. All legal software, antivirus software, firewall be available for smooth functioning of the laboratory.
3. Staff room of 100 sq.ft. with one table and one Almeria for each faculty member.
4. One office space of 100 sq.ft. with appropriate furniture. .
5. One ladies room of 100 sq.ft. with attached toilet.

6. One reading room of 200 sq.ft. with seating arrangements for at least 30 people. The library may be accommodated in the library.
7. One copy of every text book among five students for each subject be available along with one copy of reference book as per the syllabus.
8. Library must subscribe for computer and scientific magazines. Appropriate general reading materials must be available for overall development of students.
9. An open space for sports activities. The college must be encouraged to have sport equipments.

Staff:

1. The head of the department in the scale of reader/Professor.
2. The minimum number of teachers must be appointed as per the work load. Per semester, the work load may be computed on the basis of theory classes and practicals per batch. Minimum number of teachers to run the course must be five excluding the head. Teachers must be appointed by the university/UGC norms. The quality of the course is directly related to quality of teachers for the course.
3. There must be one clerk in the office to look after administrative work. The placement of all staffs must be maintained properly.
4. One qualified librarian
5. An appropriate number of class IV employees

8. Admission / Promotion process

In response to the advertisement for registration, interested students will have to register for this course. Admissions will be done on the basis of qualifying exam percentage, performance of students at Common Entrance Test (CET) and personal interview. The CET will be conducted in the month of June every year.

The student will be promoted to next semester of a year with full carry on. For admission to second year (Level 6), he/she has to pass minimum 75% papers of first year (first semester + second semester). For admission to third year (Level 7), he/she has to pass first year and minimum 75% papers of second year (third sem + fourth sem).

9. Earning credits and Grade system

At the end of every semester, a letter Grade will be awarded. The performance of student will be measured by the number of credits that he/she earned by weighted Grade Point Average (GPA). The semester Grade Point Average (SGPA) will be awarded after completion of respective semester and Cumulative Grade Point Average (CGPA) will be awarded at exit point.

The grade reflects student's performance in the course. A ten point rating scale shall be used for the evaluation of the performance of the student to provide letter grade for each course and overall grade for B.Voc.(Jewellery Design & Gemology) Program. The grade points and equivalent range of marks are shown in table.

SN	Marks Obtained (in %)	Grade points	Grade	Description
1	90 -100	9.00 – 10	O	Outstanding
2	80 – 89	8.00 – 8.90	A++	Excellent
3	70 – 79	7.00 – 7.90	A+	Exceptional
4	60 – 69	6.00 6.90	A	Very Good
5	55 – 59	5.50 – 5.90	B+	Good
6	50 – 54	5.00 – 5.40	B	Fair
7	45 – 49	4.50 – 4.90	C+	Average
8	41 – 44	4.10 – 4.40	C	Below Average
9	40	4.00	D	Pass
10	< 40	0.0	F	Fail (Unsatisfactory)

Non-appearance for examination / assessment of any paper shall be treated as fail in that paper.

Computation of SGPA (Semester Grade Point Average) and CGPA (Cumulative Grade Point Average)

Grade in each subject / course will be calculated based on the summation of marks obtained in aa five modules.

The computation of SGPA and CGPA will be below

Semester Grade Point Average (SGPA) is the weighted average points obtained by the students in a semester and will be as follows

$$SGPA = \frac{\text{Sum (Course Credits) x Number of Grade points in Concerned Course Gained by the student}}{\text{Sum (Course Credits)}}$$

The SGPA will be mentioned on the grade card at the end of every semester.

The cumulated Grade Point Average (CGPA) will be used to describe the overall performance of a student in all semester of the course and will be computed as under.

$$CGPA = \frac{\text{Sum (All Six Semester SGPA)}}{\text{Total number of Semester}}$$

The SGPA and CGPA shall be rounded off to the second place of decimal.

Grade Card:

The results will be declared by the university and the grade card will be issued after completion of every semester. The cumulative grade card with CGPA will be issued by the University at each exit point.

10. Statement showing the details of Fees Per Year for B.Voc. (Jewellery Design and Gemology course)

S.N	Particulars	Fees (Rs)
1	Prospectus	25
2	Registration	25
3	e-Suvidha	50
4	Medical exam	15
5	I-card	10
6	Admission fee	25
7	Magazine	50
8	Gathering fee	50
9	Student Association Fund	10
10	Student Aid Fund	10
11	College Exam fee	75
12	College Development fee	100
13	Cultural activity/Youth festival	50
14	Disaster Management fee	20
15	Tuition fee	3800
16	Gymkhana fee	50
17	Library fee	50
18	Student welfare	20

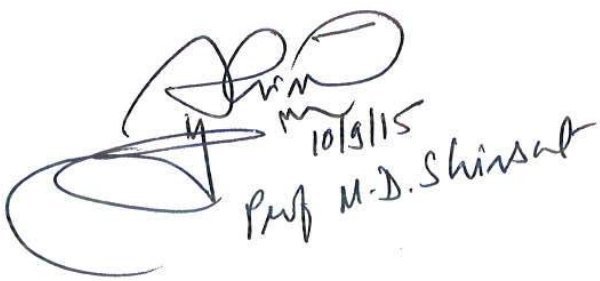
19	NSS	10
20	Ashwamedha	04
21	Avishkar	04
22	Indradhanushy	04
23	Aavahan	04
24	Abhiyan	04
25	University/college fund	10
26	Computer fee	100
27	Environmental fee	100
28	Vasantrao Kale Earn & Learn	10
29	Laboratory fee	2000
30	Library deposit	100
31	Tutorial/Journal fee	180
	Total	**6965**
32	University Eligibility fee Marathwada region	50
	For Maharashtra state	100
	Out of Maharashtra	500
	Out of country	12500

11. Statement showing details of commencement of examination and examination fees.

Examination	How many times in a year	Submission of exam forms		Commencement of exam		Exam Fees per term
		I Term	II Term	I Term	II Term	
B.Voc. (Jewellery Design & Gemology) I,II & II year	Twice in a year	September	April	October / November	March / April	Rs. 750/- (Theory + Pract.)

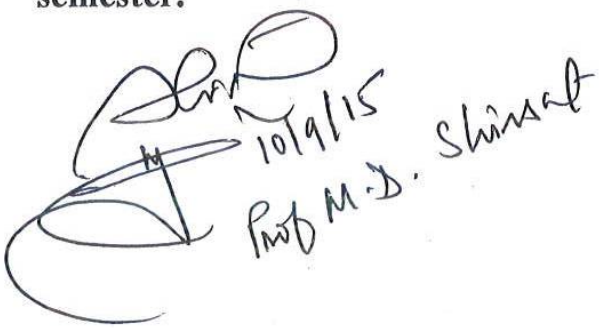
12 Curriculum Structure and Scheme of Evaluation: B.Voc. (Jewellery Design & Gemology)

Semester – I							
General Education Components							
Sr. No.	Paper No.	Paper Title	No. of Credits	Scheme of Teaching	Scheme of Evaluation		
1	VOC 101	Linguistic Proficiency- I(English & Marathi) with Language lab training	4	4	50	2	50
2	VOC 102	Computer Fundamentals- I (Information Technology): Theory	2	2	50	2	50
3	VOC 103	Computer Fundamentals- I (Information Technology): Laboratory Coursework	2	2	50	2	50
4	VOC 104	Professional Ethics and Management Practices	4	4	50	2	50
Skill Development Components-							
5	GEM 141	Introduction to Gemology& Introduction to Jewellery Design	2	2	50	2	50
6	GEM 142	Mineralogy & Crystallography	2	2	50	2	50
7	GEM 143	Optical Properties and Instruments	2	2	50	2	50
8	GEM 144	Basic Jewellery Designing(1-11)	2	2	50	2	50
9	GEM 145	Basic Jewellery Designing(12-14)	2	2	50	2	50
10	GEM 146	Project I	2	2	50	2	50
11	GEM 147	Practical Based on Theory	4	4	100	4	100
12	GEM 148	Practical Based on Theory	4	4	100	4	100
		Total	**32**	**32**			**700**
		Total Credits = General Education Components + Skill Development Components (A/B/C)				**12+20=32**	



Semester –II							
General Education Components							
Sr. No.	Paper No.	Paper Title	No. of Credits	Scheme of Teaching	Scheme of Evaluation		
1	VOC 201	Linguistic Proficiency – II (English & Hindi) with language lab training	4	4	50	4	50
2	VOC 202	Computer Fundamentals – II (Basic Computer Hardware System) : Theory	2	2	50	2	50
3	VOC 203	Computer Fundamentals – II (Basic Computer Hardware System) : Laboratory Coursework	2	2	50	2	50
4	VOC 204	Environment Management	4	4	50	4	50
Skill Development Components-							
5	GEM 149	Basic of Geology & Jewellery Designing	2	2	50	2	50
6	GEM 150	Gemstone & Inclusions	2	2	50	2	50
7	GEM 151	Computer Fundamental & Use of Jewel Cad	2	2	50	2	50
8	GEM 152	Introduction To Goldsmithing And Metallurgy	2	2	50	2	50
09	GEM 153	Casting(a-s)	2	2	50	2	50
10	GEM 154	Project II	2	2	50	2	50
11	GEM 155	Practical Based on Paper-III	4	4	100	4	100
12	GEM 156	Practical based on Paper-IV	4	4	100	4	100
		Total	**32**	**32**			**700**
Total Credits = General Education Components + Skill Development Components (A/B/C)					**12+20=32**		

Note: Theory and practical exam should be conducted at the end of each semester.



13. Question paper pattern

Note: 1 All questions carry equal marks
2 Question No 1 is compulsory
3 Attempt any four for questions no 2 To 7

Q. No.	Format	Marks
1	Multiple Choice/Fill in the blank/Match the pair/ one line answer. 1) 2) . . 10)	1 x 10 = 10
2	Descriptive	1 x 10 =10
3	Descriptive	1 x 10 =10
4	Descriptive	1 x 10 =10
5	Write short notes on any TWO (a) (b) (c)	2 x 5 = 10
6	Write short notes on (a) (b)	2 x 5 = 10
7	Descriptive	1 x 10 =10
	Total	**50**

S.N.	Year-1 (Semester-I)	Credits
1.	**GEM-141: Introduction to Gemology & INTRODUCTION JEWELLERY Design** **Introduction to Gems** Scope & introduction to Gemology, Definition of Geology, Basic properties of gems, Definition of Mineral, Chemical Composition of Mineral/Gemstone, Crystal Structure, Chemical Bonds, Crystallography, Formation - Geology related to gem minerals. Earth's interior, Geological activities, Origin and occurrence of gem stones **INTRODUCTION JEWELLERY** Introduction to Jewellery Industry, History of Ornamentation – Indus Valley, different periods-Mauryan, sunga, gupta, kushan, chandelle, mughal, tribal jewellery, jewellery rest of the world & European, Precious & Semiprecious Jewellery Industry, Jewellery for Men & Women, Advancement of techniques in India.	02
	GEM-142:Mineralogy & Crystallography Minerals, Atomic structure, Crystalline state and crystalline Materials Crystal lattice, Amorphous and metamict minerals Isomorphism and polymorphism. Crystallizations from melt Crystallization from Solution (Evaporation and precipitation) Crystallization from Vapour (Sublimation) Physical properties of Minerals **Crystallography** Crystals and poly crystalline material Crystal structure and symmetry Forms, habit, cleavage Internal growth (twinning) Crystal surface markings Crystallographic system (7) Crystalline features in important gemstones Definition and conditions conductive for the formation of crystals, crystal habits and aggregates. Crystal morphology-faces, forms, edges, solid angles, interracial angle and its measurement by contact Goniometer, law of constancy of interracial angle. Crystal system & habit	02

	GEM-143: Optical Properties & Instruments Optical properties of minerals as viewed under plane polarized light and cross nicols isotropism and anisotropism, Colour, Cleavage, R.I, B.R. Colour, Transparency; Electromagnetic spectrum - Visible Spectrum; Nature of visible light, Reflection & refraction, Dispersion of light, Polarization, Wave length and frequency, Isotropism and anisotropism, pleochroism, polarization, Interference figures and their use in gem identification, diaphaneity, cut, hardness, crystal system, specific gravity, cleavage, refractive index, birefringence, inclusions, fluorescence, **Gemological Instruments** Gemological Microscope, Refractometer, 10X, Dichroscope, Polariscope & its construction & use	02
	GEM-144:BASICS OF JEWELERY DESIGNING(1-7) 1. Role of Jewellery Designer 2. Understanding of various shapes found in nature, forms of creation 3. Gemstone shapes and cuts 4. Deriving inspiration from various elements 5. Developing skills of turning inspiration into ideas 6. Hand control exercise 7. Free hand and counter sketching	02
	GEM-145:BASICS OF JEWELERY DESIGNING(8-14) 8. Still life and perspective view 9. Shading in geometrical shapes 10. Theory of different types of designs 11. Studying different shapes and cuts of stones 12. Rendering in gemstones faceted and cabochons 13. Ideas on paper for jewelry 14. Portfolio development	02

	Year-1 (Semester-II)	
3.	**GEM-149: BASICS OF GEOLOGY & JEWELERY DESIGNING** Earth's structure & interior, introduction to types of rocks, internal & external processes taking place on earth, formation of gemstones, provinces of world. **BASICS OF JEWELERY DESIGNING** a) Gem instruments & fashioning of Gems, b) Study of Gem species, c) Basics of Drawing skills-I d) Basics Drawing Skills-II	**02**
	GEM-150: GEMSTONES & INCLUSIONS a) Diamond, Beryl, Chrysoberyl , Corundum, Feldspar Group, Garnet Group , Tourmaline, Spinel, Topaz, Opal , Pearl , Quartz, Coral. b) Differentiating Natural Gemstones From Its Synthetics And Simulants. c) Different Types of Synthetics & Its Identification: Distinction between natural and synthetic stones. d) Different types of treatments on gemstones : Heat treatment, glass filling, diffusion etc. e) Identification of treated gemstones **INCLUSIONS** Inclusions and its causes Special optical effects due to inclusion- Opalescence; Adularescence; Irridescence; Asterism; Chatoyancy. Identification of various inclusions in gemstones by occurrences	**02**

4.	**GEM-151: COMPUTER FUNDAMENTALS AND USE OF JEWEL CAD** 1) Computer Fundamentals 2) Use of Computers in Gemology and Jewelry Designing 3) MS Office (Word, Excel, PowerPoint) 4) Introduction to Jewel CAD and its use in Jewelry Designing	02
	GEM-152: INTRODUCTION TO GOLDSMITHING AND METALLURGY **Basics of Metallurgy** a) Difference between Metals and Non-metals b) Properties of Metals used in the jewellery like Hardness, Ductility, Malleability, etc. c) Tools used in the jewellery and their usage. d) Safety measures taken while making jewellery like for Torch using, Chemicals, etc.	02
	GEM-153: CASTING(a-s) a) Necessity for Rubber mould packing b) Prerequisite before rubber mould packing c) Technique of mould packing d) Vulcanizing technique e) Rubber mould cutting techniques f) Procedure for removal of wax pieces from rubber mould. g) Necessity for cleaning wax pieces with different means. h) Purpose and operations for wax tree making. i) Precautions to be taken for wax tree making j) What is Dewaxing? k) What is the necessity for Dewaxing? l) Purpose of Burnout cycles? m) Different Burnout cycles used in the casting n) Precautions to be taken during melting of metal for the casting o) Principle, operation and use of casting machine. p) Procedure for pouring the metal into flask q) Quenching procedure r) Defects in casting s) Analysis of defects in casting	02

5.	**Paper V : Practical** **1) Mineralogy & Crystallography** a) Identification of Physical properties of minerals b) Study of Elements of symmetry c) Study of Crystal Models **2) Use of gem basic instruments** a) 10 x loupe b) Polariscope and conoscope c) Dichroscope d) Ultra-violet light unit e) Microscope f) Hardness pencils g) Refractometer h) Mettler's Balance for specific gravity determination i) Spectroscope j) Chelsea Colour filter **3) Identification of gemstones, distinction between natural and synthetic stones.** a) Observation of external features (cut, colour, fractures, etc.) of a gemstone using a 10x lens. b) Observation of external symmetry, surface marks and cleavage of various crystals and their identification. c) Determination of hardness on Moh's Scale using hardness pencils. d) Determination of specific gravity by hydrostatic weighing method and by using Metller's Balance. e) Measurement of refractive indices and birefringence tests using a gem-testing refractometer. f) Detection of double refraction, interference figures and internal strain with the polariscope. g) Detection of double refraction, by observing pleochroic colours with the dichroscope and 10x lens. Identification of gemstones on the basis of pleochroic colours. h) Study of the absorption spectra of various gemstones using a direct vision spectroscope. i) Study of the fluorescent colours exhibited by various gemstones under ultraviolet (long wave and short wave) light. j) Observation of the internal features of various natural and	

	synthetics gemstones with a microscope. k) Use of colour filters in detecting synthetic gemstones. l) Identification of unknown gemstones using the above techniques. m) Visual Identification of various gemstones by its crystal system and other external properties. n) Various types of cuts and principles of gemstone cutting o) Minimum 7 days of field work **4) Designing** **a)** Basics of design, object drawing according to light source and shading, basic perspective drawing, nature drawing, colour theory general anatomy of birds, animals drawing geometrical constructions with measurements such as parallel lines, perpendicular lines, bisecting angles, triangle, square, hexagon, etc. Geometrical designs design from natural elements. **b)** Use of jewel cad in designing. 1) Introduction to CAD modeling 2) CAD Basics 3) Creating Geometry 4) Precision Modeling 5) Editing Objects 6) Point Editing 7) 3-D Modeling and Editing 8) Printing 9) Customizing Workspaces and Toolbars 10) Designing of typical Plain/Studded Jewellery Items such as: Ring, Bangle, Earring, Pendant, Necklace and Bracelet **5)** Soldering, piercing, filing, alloying and wire drawing, portfolio making, casting, rubber mould, Vulcanizer and wax injector, dewaxing.	

Prof. Ashok Tejankar
Chairman
B.Voc Board in Geology

Mineralogy, Gemology & Jewellery Design Book List		
Sr. No.	Title of the Books	Author Name
1	Gemstone : Properties and identification	Ramchandran K. T.
2	The mystique of Gems and Stone	Divedi B.
3	Encyclopedia of crystal gem and metal magic	Cunningham Scott
4	Gems and their occult powers	Scherman P. N.
5	Dorling Kindersley Hand Book gemstones	Hall C.
6	Mineralogy	Perkins Dexter
7	Rutleys Elements of mineralogy	Gribble. C. D.
8	Text Book of mineralogy	Ford William
9	Applied Mineralogy	Mukherjee Swapna
10	Rock and Mineral	Symes. R. F.
11	The illustrated Encyclopedia of minerals- Rocks and fossils of the world	Farndon J. / Parkars
12	Optical Mineralogy	Phillip R.
13	The Complete Guide to Rocks and Minerals	Farndon John.
14	Ore Geology and Industrial Minerals	Evans Anthony
15	Recent Development in Geology and Mineral resources of central India	Pophare. A. M.
16	Dana's Text book of mineralogy	Ford William and Dana's

17	Principle of Mineralogy : Principles and practice	Gribble. C. D. /Hall A.
18	Principle of Mineralogy	Blackburn/ Dennen

19	Mineralogy : Concepts, Descriptions Determinations	Berry L. G.
20	Industrial Minerals	Sinha R. K.
21	Book of Mineralogy : Withan Extended treats on crystallography and physical Mineralogy	Ford W. E. / Dana
22	Fundamentals of Optical Spectroscopic X ray Mineralogy	Mitra Sachinth
23	Manual of Mineralogy	Klein C. / Hurlbutes
24	Elements of Mineralogy	Mason Brain/ Berry
25	Rutleys Elements of Mineralogy	Read. H. H.
26	Principles of Mineral Dressing	Gaudin A. M.
27	Mineral Exploration	Charles. J. Moon
28	Rock and Minerals	Dorling Kinderley
29	Antique Design Creations	VAISHALI PUBLICATIONS
30	CREATIVE JEWELS	VAISHALI PUBLICATIONS
31	SPLENDID GOLD VOL-2 KOLKATA SPECIAL DESIGNS	KOLKATA SPECIAL DESIGNS
32	STELLAR II	VAISHALI PUBLICATIONS
33	GRACIA	VAISHALI PUBLICATIONS

34	INDIAN DESIGNER JEWELERY VOL-1	VAISHALI PUBLICATIONS
35	INDIAN DESIGNER JEWELERY VOL-2	VAISHALI PUBLICATIONS
36	MADE FOR MAHARAJAS	LUSTRE PRESS,ROLI PRESS
37	HANDCRAFTED INDIAN ENAMEL JEWELLERY	MAPIN PUBLICATION PVT.LTD.
38	TRADITIONAL JEWELLERY OF INDIA	THAMES & HUDSON (U.K)
39	THE ART OF JEWELRY DESIGN	SUCHIFFER PUBLISHING LTD.
40	JEWELS OF ARABIA	PUBLISHED BY J2 HOLDING LTD

Eligibility:- Higher Secondary Schooling (H.S.C.) certificate from National/State Board from any stream. The selection procedure is as per State Government &University Norms.

Fees Structure: - Tuition Fees Rs. 10000/-, Lab Fees Rs. 4000/- & other fees as per rules of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad & State Government.

10/9/15

Prof M.D. Shirsat

Mr. Sandip Shirsat

Mob:- 8408990619