

**UNIVERSITY OF CALICUT
(Abstract)**

Diploma in Gemmology under Distance Education mode - Regulations, Scheme, Syllabus and question paper pattern - with effect from 2011 admission - implemented - orders issued.

GENERAL & ACADEMIC BRANCH-IV 'J' SECTION

No. GA IV/J/1/137/2010
28.02.2011.

Dated, Calicut University PO,

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- Read: 1. Minutes of the meeting of the Board of Studies in Gemmology and Jewellery Designing held on 29.01.2010.
2. Minutes of the meeting of the Board of Studies in Gemmology and Jewellery Designing held on 19.02.2011.
3. Orders of the Vice-Chancellor, in the file of even no. dated 24.02.2011.

ORDER

As per paper read as (1) above, the Board of Studies in Gemmology and Jewellery Designing held on 29.01.2010 discussed and finalized the Rules, Regulations, Syllabus, Scheme of examination etc. of Diploma in Gemmology course to be offered through the School of Distance Education.

As per paper read as (2) above, the Board discussed, modified and finalized the Rules, Regulations, Syllabus and study materials of the proposed Diploma in Gemmology under Distance Education mode and submitted the final version.

The Vice-Chancellor, considering the urgency for implementation of the regulations for the proposed Diploma in Gemmology, exercising the powers of the Academic Council, has approved both the minutes of the meeting of the Board of Studies held on 29.01.2010 and 19.02.2011, subject to ratification by the Academic Council, vide paper read as (3) above.

Sanction has therefore been accorded to implement the modified Rules, Regulations, Scheme, Syllabus and question paper pattern of Diploma in Gemmology under Distance Education mode with effect from 2011 admission onwards.

Orders are issued accordingly. Modified Regulations, Scheme, Syllabus and model question paper pattern appended.

**Sd/-
DEPUTY REGISTRAR(G&A**

IV)

For REGISTRAR

To

1. The Director, School of Distance Education.
2. The Chairman, Board of Studies in Gemmology and Jewellery Designing.

Copy to:

PS to VC/PA to Registrar/CE/PA to FO/

Forwarded/By Order

**Sd/-
SECTION OFFICER**

Digital Wing (with a request to upload in the University website)/PRO/Enquiry/Information Centres/DR III (Exams)/EGI/DR-PG/Tabulation Section/GAI,II,III/GAIV 'C' 'B' 'E' sections/DDLFA/SF/FC

UNIVERSITY OF CALICUT

DIPLOMA IN GEMMOLOGY UNDER DISTANCE EDUCATION MODE

Rules, Regulation, Fee Structure, Syllabus and Scheme of Examinations

1. Name of the Course : Diploma in Gemmology (DG)
2. Duration : One year
3. Eligibility : Higher Secondary or Equivalent
4. Selection process : Based on an Entrance Test
5. Number of Paper : Theory Papers : 4
Practical : 2
Project : 1
6. Evaluation System : 80% external and 20% internal
7. Proposed fee Structure : Application : Rs.200/-
Admission fee : Rs.500/-
Tuition fee : Rs.30,000/-
Exam fee : Theory : Rs.100 per paper
Practical : Rs.200/-
Project : Rs.250/-

UNIVERSITY OF CALICUT

DIPLOMA IN GEMMOLOGY

PAPER I - COMMUNICATION SKILLS IN ENGLISH

1. AIM OF THE COURSE

- To improve the student's ability in listening, speaking and reading English both at the theoretical and practical levels.

2. OBJECTIVE OF THE COURSE

- To introduce the students to the segments and supra-segmental of sound in English
- To enhance the basic communication skills of the students.
- To enable the students to use English with fluency and accuracy in everyday situations.
- To expose them to different varieties of English in order to help them comprehend the language.
- To enable them to read fast and help them develop the skills of critical comprehension and thinking.

3. COURSE OUTLINE

MODULE – 1

1. Listening: Sounds, Stress and Intonation

- a) Phonemic symbols: Vowels – Diphthongs – Trip thongs – Consonants
- b) Stress: Syllables – World Stress – Stress in Monosyllables – Stress in Polysyllables – Stress in words used as different parts of Speech – Stress in compound words – Stress – Sentence Stress.
- c) Strong forms – Weak forms – Contracted forms
- d) Intonation: Falling Intonation and Rising Intonation.

2. Listening Skills:

Barriers to listening – Academic listening – Listening to talks and descriptions – Listening to announcements – Listening to news on the radio and Television – Listening to casual conversations.

MODULE – II

Speaking:

Word Stress and Rhythm – Weak Forms and Strong forms – Pauses and Sense Groups – Falling and Rising tones – Fluency and pace of Delivery – Problem Sounds – Different Accents (British and American) – Influence of Mother Tongue

MODULE – III

Communication Skills

1. What is communication? – importance of the situation (formal, semi-formal, informal – spoken and written communication – essentials of effective communication – Greeting and Introducing – Making requests – Asking for permission – Giving and denying permission – Offering and accepting help – Asking for and declining help – giving instructions and directions.
2. Telephone Skills: Understanding Telephone conversation – Handling calls – leaving Message – making requests – Asking for and Giving permission – Giving instructions
3. Discussion Skills: Giving your opinion agreeing and disagreeing, Explaining, Making suggestions – Interrupting – Questioning – Reporting – Detailing with questions.

MODULE – IV

Reading

Surveying a textbook – scanning – using an index reading with a purpose – making predictions about your reading – Surveying a chapter – unfamiliar words – connections between facts and ideas – locating main points – understanding text structure – making inferences – reading graphics – identifying view points – reading critically – analyzing argument.

Note on Course Work

The course work should give emphasis to the practice of the skills of listening, speaking, and reading undertaken both as classroom activity and as homework.

4. READING LIST

A) FURTHER READING

Sl. No.	Title	Author	Publisher & Year
1.	Study Listening: A Course in Listening to Lectures and Note-taking (Book with Audio CD)	Tony Lynch	Cambridge University Press (2008).
2.	Study Speaking: A Course in Spoken English For Academic Purposes (Book with Audio CD)	Kenneth Anderson, Joan Maclean and Tony Lynch	Cambridge University Press, 2008.
3.	Spoken English Part I & II A Foundation Course for Speakers of Malayalam	Kamlesh Sadanand, & Susheela Punitha	Orient Longman Pvt. Ltd. (2008)

Paper II - PHYSICAL AND CHEMICAL PROPERTIES OF GEMSTONES

Unit 1: Introduction to gemmology, basic qualities (hall marks), Chemical Composition, Weights and measures. Factors that influence the value of gemstones, beauty, durability, rarity and acceptability.

Unit 2: Chemical bonding and crystallography – atomic structure, types of Chemical bonds, shape of molecules, crystalline and amorphous materials, crystal symmetry (Plane, axis, centre), crystal forms, crystal habits, seven crystal systems, twinning, isomorphous substitution, crystalline polymorphism.

Unit 3: Physical properties of gemstones. Hardness-Definition, Moh’s scals, selection of reference minerals, application in gemmology, limitations of use Cleavage –Definition, description, importance in gemology and lapidary work.

Specific gravity – Definition, Determination, hydrostatic weighing, the use of high density liquids in gem testing, flotation and pycnometer method

Paper III – OPTICAL PROPERTIES AND INSTRUMENTATION

Unit 1: Optical properties – Importance of light in gemmology, the electromagnetic spectrum, the visible region.

Transparency – its degree as an observation for gem identification, cutting and grading.

Laws of refraction, refractive index, reflection and its effects, refractometer, birefringence and its determination.

Unit 2: Polarized light – Nature and production, isotropic and anisotropic behaviour, optic axes – Design and construction of polariscope use of polariscope in gemmology.

Unit: 3. Absorption of light, allochromatism, idiochromatism, differential absorption of light, pleochroism, Dichroscope-construction and use, Interference and diffraction, play of colour, dispersion, use the Chelsea colour filter, luminescence.

Unit 4: Apparatus for gem identification Use of 10 x lens and balance, description of the microscope and an awareness of its other applications and use as a magnifier, design, construction and use of spectroscope Absorption spectra of typical gem materials. Use of ultraviolet lamps. Thermal and electrical conductivity and probes, reflectance meters. Brief study on the use of gem testing, Infrared, ultraviolet and X-ray instruments.

Paper IV MINEROLOGY AND IDENTIFICATION OF GEMSTONES.

Unit 1: Natural gemstones- The Earth's structure and geological activities, the origin and occurrence of gem minerals.

Colour, Chemical composition, Crystal system and habit, Cleavage, Hardness, Specific gravity, Refractive index (with birefringence)

Pleochromism and luster of all gem varieties of the following:-

Andalusite, Appatite, Axinite, Aragonite, Azurite; Bernitoite, Beryl, Calcite; Chrysoberyl, Corundum; Cassiterite, Danburite, Diamond; Diopside, Enstalite, Epidite; Feldspar group, fluorspar; Cannel group, Haematite; Howelite, Idocrase, lotile; Jadeite, Kornerupine; Kyanite, Lapislazuli, Malachite, Nephrite; Obsidian, Odontite, Opal, Peridot, Phenakite; Prehnite, Pyrites, Quartz group; Rhodochrosite, Rhodonite, Sodalite; Sonhalite, Smithstane, Sphene, Spinel group; Spodumene, Steatite, Topaz, Tourmaline; Turquoise, Zircon and Zoisite.

Unit 2: Gem materials of organic origin – Formation, structure, recovery and identification of native, cultured and imitations pearls, Amber, coral, copal, ivory, Jet, tortoise shell. Artificial gem materials – Methods of manufacture and identification of synthetic composite and imitation stones.

Unit 3: Fashioning of gem stones - Description of gem stone cuts including diagrams, brilliant, step, mixed, rose, cabochon, scissor or cross.

Processes in lapidary and diamond manufacture. Valuation standards and appraisal procedures of gemstones, marketing and export procedures.

Unit 4: Treatment of gemstones- Dyeing, bleaching, impregnation, coating, heat treatment, irradiation, laser treatment, fracture filling and diffusion treatment.

HPHT diamond treatment.

Gem settings and testing in Jewellery, Trading, export, mining, lapidary activities and diamond manufacture regulations.

Practical I – Megascopic Identification of Crystals and Minerals

Study of Crystal forms, habits and growth features of various gem stones

Practical II – Systematic Identification using instruments

Specific gravity, R.I. Dichroism, anisotropism, chelsea filter effect, Spectra, luminescenes, inclusions.

Distinguishing gem stones of the same colour form on the basis of various physical and optical properties identification of natural, cultured and imitation pearls.

Book Recommended :

1. Beginners guide to Gemmology by P.G.Read
2. Practical Gemmologer by R.Webstar
3. Gem Testing by S.W. Anderson
4. Gemstones of the world by W.Schumann.

SCHEME OF EXAMINATION

Sl. No.	Title	Duration (Hours)	Marks		Total
			Internal	External	
1.	Paper I : Communicative skills in English	3	20	80	100
2.	Paper II : Physical and Chemical Properties of Gemstones	2	20	80	100
3.	Paper III : Optical properties and Instrumentations	2	20	80	100
4.	Paper IV : Minerology and Identification of Gemstones	2	20	80	100
5.	Practical I : Megascopic Identification of Crystals and Minerals	1	--	--	50
6.	Practical II : Systematic Identification using instruments	2	20	80	100
7.	Project	--	--	--	50
TOTAL MARKS					600

Question Paper Pattern

Section A : 10 questions 2 marks each (10 x 2 = 20)

Section B : 10 Short answer type questions 8 to be answered 5 marks each (8 x 5 = 40)

Section C : Six essay type questions 4 to be answered 10 marks each (4 x 10 = 40)

For theory papers questions will be selected from a question bank prepared by experts in the field.

Pass minimum : Candidates shall be declared to have passed the course if he/she obtains not less than 60% of marks in each theory paper and 80% in practical. Candidates failing to secure the paper minimum need to reappear only for that paper.

Grading : 70% and above the aggregate marks – First class , 80% and above - Distinction