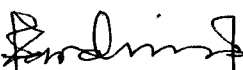




SYLLABUS FOR
B.Voc. in Gem & Jewellery Industry Professional
Academic Session
2023 – 26

SCHOOL OF STUDIES IN GEOLOGY & WRM
PT. RAVISHANKAR SHUKLA UNIVERSITY, RAIPUR




20.02.2023


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B.Voc. in Gem & Jewellery Industry Professional encourages students to choose their academic path leading to the award of diploma, advanced diploma and degree under the Multiple Entry and Exit System (MEES). The system allows students to drop their course and resume it at a later stage as and when they desire or deem it worth pursuing. This arrangement will prove to be a boon for those students who cannot continue their studies due to financial, social or any other reason and desire to resume their studies when the conditions become favorable in due course of time.

The student who has successfully cleared the Class XII exam, in any stream and of any recognized Board, is eligible for admission. The admission process is through an entrance test conducted by the University.

The degree is of 3-year duration. B.Voc. in Gem & Jewellery Industry Professional degree will be awarded to the candidate after successful completion of exam of Semester 1, 2, 3, 4, 5 and 6 and being declared pass.

The multiple entry and exit options are as follows:

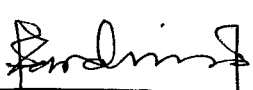
- Option 1: If the student exits after one year and successfully completes exam of Semester 1 and 2 and being declared pass, he/she will be awarded with a Diploma in Gem Identification & Grading;
- Option 2: If the student exits after two year and successfully completes exam of Semester 1, 2, 3 and 4 and being declared pass, he/she will be awarded with a Advanced Diploma in Gem Cutting & Polishing & Jewellery Designing diploma.

| Semester Successfully completed | Option Exercised | Awarded |
|---------------------------------|------------------|---|
| 2 Semester | Exit | Diploma in Gem Identification & Grading |
| 4 Semester | Exit | Advanced Diploma in Gem Cutting & Polishing and Jewellery Designing |
| 6 Semester | | B.Voc. in Gem & Jewellery Industry Professional |

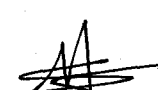
The student has to complete the course within a time span of five-years, if entry and exit option is exercised at any time of the enrolled course.

The Syllabus and Marks distribution for the entire course is split into three components for the ease of understanding.




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The course curriculum for Diploma in Gem Identification & Grading is divided into two semesters, over one academic year. The Semester I and II comprises of four theory courses and two laboratory courses. A student will have to clear all the theory and practical. The practical examination would be of 3 hours duration. In each practical 20 % marks shall be allotted for Sessional work, 10% marks are allotted for viva-voce.

SYLLABUS

| Course Name: Diploma in Gem Identification & Grading | |
|--|---|
| Semester 1 | |
| Paper 1 | Business Communication & Writing Skills |
| Paper 2 | Introduction to Mineralogy & Gemological Techniques |
| Lab Course I | Gemology I |
| Semester 2 | |
| Paper 3 | Descriptive Gemology |
| Paper 4 | Gemstone Grading & Enhancement Techniques |
| Lab Course 2 | Gemology II |

Marks Distribution

| Course Name: Diploma in Gem Identification & Grading | | | | |
|--|---|------------|------------|------------|
| Semester 1 | | | | |
| | | External | Internal | Total |
| Paper 1 | Business Communication & Writing Skills | 80 | 20 | 100 |
| Paper 2 | Introduction to Mineralogy & Gemological Techniques | 80 | 20 | 100 |
| Lab Course I | Gemology I | 80 | 20 | 100 |
| Semester 2 | | | | |
| Paper 3 | Descriptive Gemology | 80 | 20 | 100 |
| Paper 4 | Gemstone Grading & Enhancement Techniques | 80 | 20 | 100 |
| Lab Course 2 | Gemology II | 80 | 20 | 100 |
| Grand Total | | 480 | 120 | 600 |

Syllabus

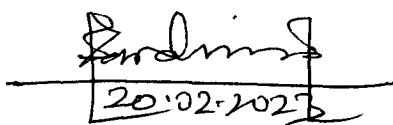
| Course Name: Diploma in Gem Identification & Grading | |
|--|--|
| Semester 1 | |
| Paper 1 | Business Communication & Writing Skills |
| | <p>Introducing Professional English: Theory of Communication, Types and modes of Communication, Oral communication in English, Communication Cycle, Monologue, Dialogue, Group Discussion, Effective Communication/ Mis-Communication, Principles (7C's) of communication, Grapevine communication, English phonology, Intonation patterns in English, Intra-personal, Inter-personal and Group communication, Auxiliaries, Tense and aspect, Interrogative and negative sentences, The positive, Conditionals, Concord, Confusing words, Question tag.</p> |

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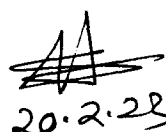
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| | |
|---------------------|--|
| | <p>Vocabulary: Verbal and Non-verbal (Spoken and Written) Personal, Social and Business, Phrasal Verbs, Idioms, Collocations, Antonyms / Synonyms, One word substitution, Agreement of verb & subject. Written Business Communication: -Email Etiquette, Professional Presentations; Writing Skills:- Documenting, Report Writing, Making notes, Letter writing, Writing a Resume, Writing- Memo, Cover Letter, Quotation, Tender, Do's & Don'ts of précis writing.</p> <p>Advanced Communication Skills: Initiating, Sustaining and Closing a Business Conversation, Selling skills: closing a sale, participating in Business Discussions, Making Formal Speeches, Diction and pronunciation, Agreeing and Disagreeing in Industry, Appointments and Friendly Reminders, Making and Handling Complaints</p> <p>Internet Communications Skills: Drafting business e-mails, attending to queries, Email etiquette, Writing blogs and articles, Presentation Techniques including making power point presentations, Group Discussions, Situational Role Play.</p> |
| Paper 2 | Introduction to Mineralogy & Gemological Techniques |
| | <ol style="list-style-type: none"> 1. Structure of Earth; Types of Rocks; Formation of Minerals and Gems; 2. Types of Chemical Bonding; 3. Physical properties of Gems: Hardness, Mohs Scale, Cleavage, Parting, Fracture, Specific Gravity 4. Magnetism, Pyro-electricity, Piezoelectricity and Radioactivity in Gems 5. Morphology of Crystals <p>Gem Optics and Gem Occurrences</p> <ol style="list-style-type: none"> 1. Basic qualities of Gems, Colour and their causes in Gems, Transparency, Lusture, Pleochroism, Interference, Dispersion, Reflection, Refraction, single and Double Refraction, Strain 2. Sheen, Chatoyancy, Asterism, Iridescence, Adularescence, Aventuryscence, Opalescence 3. Various Cuts and Shapes 4. Occurrences of precious, semi-precious gem stones in India and World, 5. Gemstone deposits of Chhattisgarh, Madhya Pradesh, Odisha, Andhra Pradesh and Jharkhand <p>Gemological Instruments</p> <ol style="list-style-type: none"> 1. Gemological Instruments and their principle: Jewellers Lens, Microscope, 2. Stereo-Zoom Microscope, Horizontal Microscope 3. Spectroscope, Dichroscope, Polariscopes, Refractometer, UV Lamp, Chelsea Filter, Thermal Probes 4. Advanced Gemological Instruments: FTIR, Raman Spectroscope, DiamondSURE, DiamondVIEW |
| Lab Course I | Gemology I |
| | <p>Determination of Hardness , Specific Gravity (by Hydrostatic and Heavy liquid method), Nature of Fracture, Cleavage direction, Crystal Habit; Identifying various cuts and shapes, Identifying luster, single-, double- refraction</p> <p>Observation of different sheen in gemstones</p> <p>Plotting of gemstone deposits of India and World</p> <p>Gemological instruments handling to study physical and optical character of gemstones</p> |




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| Semester 2 | |
|---------------------|---|
| Paper 3 | Descriptive Gemology |
| | <p>Identification of various gemstones by their physical and optical properties using gemological instruments: Orthoclase, Plagioclase, Moonstone, Albite, Diopside, Labradorite, Anorthite, Sun Stone, Amazonite, Almandine, Pyrope, Grossular, Andradite, Spessartine, Uvarovite, Ruby, Yellow Sapphire, Blue Sapphire, Pink Sapphire, Gossenite, Aquamarine, Emerald, Heliodor, Morgonite, Cats Eye, Alexandrite</p> <p>Semi-precious, Organic Gemstones and other varieties:</p> <p>Rock Crystal, Amethyst, Citrine, Smoky Quartz, Rose Quartz, Aventurine Quartz, Quartz Cat's Eye, Crypto-crystalline Quartz (Chalcedony), Jasper, Achrolite, Rubelite, Indicolite, Veriscite,</p> <p>Organic Gemstones: Amber, Coral, Pearl (Real and Cultured), Culturing of Pearls, Ivory, Wood Fossil</p> <p>Other varieties: Magnetite, Hematite, Iolite, Zade, Zadite, Nepharite, Lapis Lazuli, Sodalite, Malachite, Turquoise, Zircon, Tanzanite, Zoisite, Sinhelite, Sphene, Spinel, Spodumene, Kunzite, Rhodochrosite, Serpentine, Topaz, Kyanite, Peridote, Epidote, Fluorspar, Enstatite, Calcite</p> |
| Paper 4 | Gemstone Grading & Enhancement Techniques |
| | <ol style="list-style-type: none"> 1. Forms, Twinning, Growth Features, External and Internal Features 2. International Grading of Diamonds (4 C), Colour, Clarity, Cut, Carat: Fluorescence <p>Gemstone Synthesis & Enhancement</p> <ol style="list-style-type: none"> 1. Synthesis Methods 2. Identification of synthetic gemstones, Ruby, Blue Sapphire, Yellow Sapphire, Emerald, Cubic Zirconia, Glass Paste, Moissanite, Synthetic Quartz, Synthetic Diamond, HTPT, CVD 3. Gemstone enhancement, methods 4. Identification of enhancement and its disclosure |
| Lab Course 2 | Gemology II |
| | Gemological identification, appraising of natural, synthetic and enhanced gemstones. |

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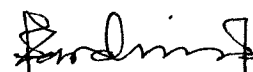
The student who has successfully cleared the semester 1 and 2 examination is eligible for admission in Advanced Diploma in Gem Cutting & Polishing and Jewellery Designing. On successful completion of four semester, of which 2 semester have been completed in the first year, and the candidate exits then in Advanced Diploma in Gem Cutting & Polishing and Jewellery Designing will be awarded. The course curriculum for Advanced Diploma in Gem Cutting Polishing and Jewellery Designing is divided into four semesters, over two academic year, of which 2 semester have been completed during the previous year. A student will have to clear all the theory and practicals. The practical examination would be of 3 hours duration. In each practical 20 % marks shall be allotted for Sessional work, 10% marks are allotted for viva-voce.

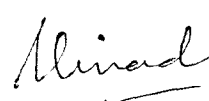
| Course Name: Advanced Diploma in Gem Cutting & Polishing and Jewellery Designing | |
|---|--|
| Semester 1 | |
| Paper 1 | Business Communication & Writing Skills |
| Paper 2 | Introduction to Mineralogy & Gemological Techniques |
| Lab Course I | Gemology I |
| Semester 2 | |
| Paper 3 | Descriptive Gemology |
| Paper 4 | Gemstone Grading & Enhancement Techniques |
| Lab Course 2 | Gemology II |
| Semester 3 | |
| Paper 5 | Gem Cutting & Polishing Techniques |
| Lab Course 3 | Gemology III |
| Semester 4 | |
| Paper 6 | Jewellery Designing & Techniques |
| Lab Course 4 | Gemology IV |

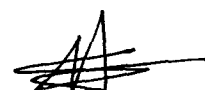
Marks Distribution

| Course Name: Diploma in Gem Identification & Grading | | | | |
|---|--|-----------------|-----------------|--------------|
| Semester 1 | | | | |
| | | External | Internal | Total |
| Paper 1 | Business Communication & Writing Skills | 80 | 20 | 100 |
| Paper 2 | Introduction to Mineralogy & Gemological Techniques | 80 | 20 | 100 |
| Lab Course I | Gemology I | 80 | 20 | 100 |
| Semester 2 | | | | |
| Paper 3 | Descriptive Gemology | 80 | 20 | 100 |
| Paper 4 | Gemstone Grading & Enhancement Techniques | 80 | 20 | 100 |
| Lab Course 2 | Gemology II | 80 | 20 | 100 |
| Semester 3 | | | | |
| Paper 5 | Gem Cutting & Polishing Techniques | 80 | 20 | 100 |
| Lab Course 3 | Gemology III | 80 | 20 | 100 |
| Semester 4 | | | | |
| Paper 6 | Jewellery Designing & Techniques | 80 | 20 | 100 |




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| Lab Course 4 | Gemology IV | 80 | 20 | 100 |
| | | 800 | 200 | 1000 |

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|---|--|
| Course Name: Advanced Diploma in Gem Cutting & Polishing and Jewellery Designing | |
| Semester 1 | |
| Paper 1 | Business Communication & Writing Skills |
| | <p>Introducing Professional English: Theory of Communication, Types and modes of Communication, Oral communication in English, Communication Cycle, Monologue, Dialogue, Group Discussion, Effective Communication/ Mis-Communication, Principles (7C's) of communication, Grapewine communication, English phonology, Intonation patterns in English, Intra-personal, Inter-personal and Group communication, Auxiliaries, Tense and aspect, Interrogative and negative sentences, The positive, Conditionals, Concord, Confusing words, Question tag.</p> <p>Vocabulary: Verbal and Non-verbal (Spoken and Written) Personal, Social and Business, Phrasal Verbs, Idioms, Collocations, Antonyms / Synonyms, One word substitution, Agreement of verb & subject. Written Business Communication: -Email Etiquette, Professional Presentations; Writing Skills:- Documenting, Report Writing, Making notes, Letter writing, Writing a Resume, Writing- Memo, Cover Letter, Quotation, Tender, Do's & Don'ts of précis writing.</p> <p>Advanced Communication Skills: Initiating, Sustaining and Closing a Business Conversation, Selling skills: closing a sale, participating in Business Discussions, Making Formal Speeches, Diction and pronunciation, Agreeing and Disagreeing in Industry, Appointments and Friendly Reminders, Making and Handling Complaints</p> <p>Internet Communications Skills: Drafting business e-mails, attending to queries, Email etiquette, Writing blogs and articles, Presentation Techniques including making power point presentations, Group Discussions, Situational Role Play.</p> |

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|---------------------|---|
| Paper 2 | Introduction to Mineralogy & Gemological Techniques |
| | <p>6. Structure of Earth; Types of Rocks; Formation of Minerals and Gems;</p> <p>7. Types of Chemical Bonding;</p> <p>8. Physical properties of Gems: Hardness, Mohs Scale, Cleavage, Parting, Fracture, Specific Gravity</p> <p>9. Magnetism, Pyro-electricity, Piezoelectricity and Radioactivity in Gems</p> <p>10. Morphology of Crystals</p> <p>Gem Optics and Gem Occurrences</p> <p>6. Basic qualities of Gems, Colour and their causes in Gems, Transparency, Lusture, Pleochroism, Interference, Dispersion, Reflection, Refraction, single and Double Refraction, Strain</p> <p>7. Sheen, Chatoyancy, Asterism, Iridescence, Adularescence, Aventuryscence, Opalescence</p> <p>8. Various Cuts and Shapes</p> <p>9. Occurrences of precious, semi-precious gem stones in India and World,</p> <p>10. Gemstone deposits of Chhattisgarh, Madhya Pradesh, Odisha, Andhra Pradesh and Jharkhand</p> <p>Gemological Instruments</p> <p>5. Gemological Instruments and their principle: Jewellers Lens, Microscope,</p> <p>6. Stereo-Zoom Microscope, Horizontal Microscope</p> <p>7. Spectroscope, Dichroscope, Polariscopes, Refractometer, UV Lamp, Chelsea Filter, Thermal Probes</p> <p>8. Advanced Gemological Instruments: FTIR, Raman Spectroscopy, DiamondSURE, DiamondVIEW</p> |
| Lab Course I | Gemology I |
| | <p>Determination of Hardness , Specific Gravity (by Hydrostatic and Heavy liquid method), Nature of Fracture, Cleavage direction, Crystal Habit</p> <p>Identifying various cuts and shapes,</p> <p>Identifying lusture, single-, double- refraction</p> <p>Observation of different sheen in gemstones</p> <p>Plotting of gemstone deposits of India and World</p> <p>Gemological instruments handling to study physical and optical character of gemstones</p> |
| Semester 2 | |
| Paper 3 | Descriptive Gemology |
| | <p>Identification of various gemstones by their physical and optical properties using gemological instruments: Orthoclase, Plagioclase, Moonstone, Albite, Diopside, Labradorite, Anorthite, Sun Stone, Amazonite, Almandine, Pyrope, Grossular, Andradite, Spessartine, Uvarovite, Ruby, Yellow Sapphire, Blue Sapphire, Pink Sapphire, Gossenite, Aquamarine, Emerald, Heliodor, Morganite, Cats Eye, Alexandrite</p> <p>Semi-precious, Organic Gemstones and other varieties:</p> <p>Rock Crystal, Amethyst, Citrine, Smoky Quartz, Rose Quartz, Aventurine Quartz, Quartz Cat's Eye, Crypto-crystalline Quartz (Chalcedony), Jasper, Achrolite, Rubelite, Indicolite, Veriscite,</p> <p>Organic Gemstones: Amber, Coral, Pearl (Real and Cultured), Culturing of Pearls,</p> |

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| | Ivory, Wood Fossil Other varieties: Magnetite, Hematite, Iolite, Zade, Zadite, Nephrite, Lapis Lazuli, Sodalite, Malachite, Turquoise, Zircon, Tanzanite, Zoisite, Sphelinite, Sphene, Spinel, Spodumene, Kunzite, Rhodochrosite, Serpentine, Topaz, Kyanite, Peridot, Epidote, Fluorspar, Enstatite, Calcite |
| Paper 4 | Gemstone Grading & Enhancement Techniques |
| | 3. Forms, Twinning, Growth Features, External and Internal Features 4. International Grading of Diamonds (4 C), Colour, Clarity, Cut, Carat: Fluorescence Gemstone Synthesis & Enhancement 5. Synthesis Methods 6. Identification of synthetic gemstones, Ruby, Blue Sapphire, Yellow Sapphire, Emerald, Cubic Zirconia, Glass Paste, Moissanite, Synthetic Quartz, Synthetic Diamond, HTPT, CVD 7. Gemstone enhancement, methods 8. Identification of enhancement and its disclosure |
| Lab Course 2 | Gemology II |
| | Gemological identification, appraising of natural, synthetic and enhanced gemstones. |
| Semester 3 | |
| Paper 5 | Gem Cutting & Polishing Techniques |
| | 1. History of Gem cutting & Polishing 2. Steps of gem cutting & polishing, cleaving, sawing, bruising, cutting & polishing 3. Introduction to different gem cutting & polishing instruments 4. Different shapes & cuts and their specifications 5. Introduction to diamond cutting & polishing techniques |
| Lab Course 3 | Gemology III |
| | Practical learning of various methods of gem cutting & polishing Making different cuts and shapes |
| Semester 4 | |
| Paper 6 | Jewellery Designing & Techniques |
| | 1. History, types of jewellery, metallurgy & metal texture, making alloys, identifying jewellery metals, jewellery manufacturing techniques, wax moulding, filing, setting, engraving techniques, jewellery enamelling 2. Diamond, gem (studded), gold, silver jewellery manufacturing techniques 3. Jewellery designing, designing various types of jewellery for men, women and children 4. Designing for international and domestic markets 5. Introduction to CAD Jewellery designing |
| Lab Course 4 | Gemology IV |
| | Goldsmith workshop training in jewellery manufacturing Concept of Jewellery designing: sketching, CAD application Submission of Project Report |

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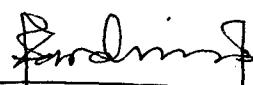
The student who has successfully cleared the semester 1, 2, 3 and 4 examination moves ahead for B.Voc. in Gem & Jewellery Industry Professional. The curriculum for B.Voc. in Gem & Jewellery Industry Professional is divided into six semesters, over three academic year, of which 4 semester have been completed during the previous two years. A student will have to clear all the theory and practicals. The practical examination would be of 3 hours duration. In each practical 20 % marks shall be allotted for Sessional work, 10% marks are allotted for viva-voce.

| Course Name: B.Voc. in Gem & Jewellery Industry Professional | |
|--|--|
| Semester 1 | |
| Paper 1 | Business Communication & Writing Skills |
| Paper 2 | Introduction to Mineralogy & Gemological Techniques |
| Lab Course I | Gemology I |
| Semester 2 | |
| Paper 3 | Descriptive Gemology |
| Paper 4 | Gemstone Grading & Enhancement Techniques |
| Lab Course 2 | Gemology II |
| Semester 3 | |
| Paper 5 | Gem Cutting & Polishing Techniques |
| Lab Course 3 | Gemology III |
| Semester 4 | |
| Paper 6 | Jewellery Designing & Techniques |
| Lab Course 5 | Gemology IV |
| Semester 5 | |
| Paper 7 | Industrial Operations |
| Lab Course 4 | Gemology V |
| Semester 6 | |
| Paper 8 | Project Work & Vocational Training |
| Lab Course 6 | Gemology VI |

Marks Distribution

| Course Name: B.Voc. in Gem & Jewellery Industry Professional | | | | |
|--|--|-----------------|-----------------|--------------|
| Semester 1 | | | | |
| | | External | Internal | Total |
| Paper 1 | Business Communication & Writing Skills | 80 | 20 | 100 |
| Paper 2 | Introduction to Mineralogy & Gemological Techniques | 80 | 20 | 100 |
| Lab Course I | Gemology I | 80 | 20 | 100 |
| Semester 2 | | | | |
| Paper 3 | Descriptive Gemology | 80 | 20 | 100 |
| Paper 4 | Gemstone Grading & Enhancement Techniques | 80 | 20 | 100 |
| Lab Course 2 | Gemology II | 80 | 20 | 100 |
| Semester 3 | | | | |
| Paper 5 | Gem Cutting & Polishing Techniques | 80 | 20 | 100 |
| Lab | Gemology III | 80 | 20 | 100 |




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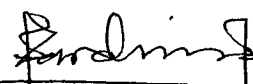


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|--------------------|------------------------------------|-------------|------------|-------------|
| Course 3 | | | | |
| Semester 4 | | | | |
| Paper 6 | Jewellery Designing & Techniques | 80 | 20 | 100 |
| Lab Course 4 | Gemology IV | 80 | 20 | 100 |
| Semester 5 | | | | |
| Paper 7 | Industrial Operations | 80 | 20 | 100 |
| Lab Course 4 | Gemology V | 80 | 20 | 100 |
| Semester 6 | | | | |
| Paper 8 | Project Work & Vocational Training | 80 | 20 | 100 |
| Lab Course 6 | Gemology VI | 80 | 20 | 100 |
| Grand Total | | 1120 | 280 | 1400 |

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|---|--|
| Course Name: B.Voc. in Gem & Jewellery Industry Professional | |
| Semester 1 | |
| Paper 1 | Business Communication & Writing Skills |
| | <p>Introducing Professional English: Theory of Communication, Types and modes of Communication, Oral communication in English, Communication Cycle, Monologue, Dialogue, Group Discussion, Effective Communication/ Mis-Communication, Principles (7C's) of communication, Grapevine communication, English phonology, Intonation patterns in English, Intra-personal, Inter-personal and Group communication, Auxiliaries, Tense and aspect, Interrogative and negative sentences, The positive, Conditionals, Concord, Confusing words, Question tag.</p> <p>Vocabulary: Verbal and Non-verbal (Spoken and Written) Personal, Social and Business, Phrasal Verbs, Idioms, Collocations, Antonyms / Synonyms, One word substitution, Agreement of verb & subject. Written Business Communication: -Email Etiquette, Professional Presentations; Writing Skills:- Documenting, Report Writing, Making notes, Letter writing, Writing a Resume, Writing- Memo, Cover Letter, Quotation, Tender, Do's & Don'ts of précis writing.</p> <p>Advanced Communication Skills: Initiating, Sustaining and Closing a Business Conversation, Selling skills: closing a sale, participating in Business Discussions, Making Formal Speeches, Diction and pronunciation, Agreeing and Disagreeing in Industry, Appointments and Friendly Reminders, Making and Handling Complaints</p> <p>Internet Communications Skills: Drafting business e-mails, attending to queries, Email etiquette, Writing blogs and articles, Presentation Techniques including making power point presentations, Group Discussions, Situational Role Play.</p> |
| Paper 2 | Introduction to Mineralogy & Gemological Techniques |




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| | <p>11. Structure of Earth; Types of Rocks; Formation of Minerals and Gems; 12. Types of Chemical Bonding; 13. Physical properties of Gems: Hardness, Mohs Scale, Cleavage, Parting, Fracture, Specific Gravity 14. Magnetism, Pyro-electricity, Piezoelectricity and Radioactivity in Gems 15. Morphology of Crystals</p> <p>Gem Optics and Gem Occurrences</p> <p>11. Basic qualities of Gems, Colour and their causes in Gems, Transparency, Lusture, Pleochroism, Interference, Dispersion, Reflection, Refraction, single and Double Refraction, Strain 12. Sheen, Chatoyancy, Asterism, Iridescence, Adularescence, Aventuryscence, Opalescence 13. Various Cuts and Shapes 14. Occurrences of precious, semi-precious gem stones in India and World, 15. Gemstone deposits of Chhattisgarh, Madhya Pradesh, Odisha, Andhra Pradesh and Jharkhand</p> <p>Gemological Instruments</p> <p>9. Gemological Instruments and their principle: Jewellers Lens, Microscope, 10. Stereo-Zoom Microscope, Horizontal Microscope 11. Spectroscope, Dichroscope, Polariscopes, Refractometer, UV Lamp, Chelsea Filter, Thermal Probes 12. Advanced Gemological Instruments: FTIR, Raman Spectroscope, DiamondSURE, DiamondVIEW</p> |
| Lab Course I | Gemology I |
| | <p>Determination of Hardness , Specific Gravity (by Hydrostatic and Heavy liquid method), Nature of Fracture, Cleavage direction, Crystal Habit Identifying various cuts and shapes, Identifying lusture, single-, double- refraction Observation of different sheen in gemstones Plotting of gemstone deposits of India and World Gemological instruments handling to study physical and optical character of gemstones</p> |
| Semester 2 | |
| Paper 3 | Descriptive Gemology |
| | <p>Identification of various gemstones by their physical and optical properties using gemological instruments: Orthoclase, Plagioclase, Moonstone, Albite, Diopside, Labradorite, Anorthite, Sun Stone, Amazonite, Almandine, Pyrope, Grossular, Andradite, Spessartine, Uvarovite, Ruby, Yellow Sapphire, Blue Sapphire, Pink Sapphire, Gossenite, Aquamarine, Emerald, Heliodor, Morganite, Cats Eye, Alexandrite</p> <p>Semi-precious, Organic Gemstones and other varieties:</p> <p>Rock Crystal, Amethyst, Citrine, Smoky Quartz, Rose Quartz, Aventurine Quartz, Quartz Cat's Eye, Crypto-crystalline Quartz (Chalcedony), Jasper, Achrolite, Rubelite, Indicolite, Veriscite,</p> <p>Organic Gemstones: Amber, Coral, Pearl (Real and Cultured), Culturing of Pearls, Ivory, Wood Fossil</p> <p>Other varieties: Magnetite, Hematite, Iolite, Zade, Zadite, Nephrite, Lapis Lazuli,</p> |

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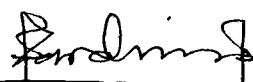
| | |
|---------------------|---|
| | Sodalite, Malachite, Turquoise, Zircon, Tanzanite, Zoisite, Sinhelite, Sphene, Spinel, Spodumene, Kunzite, Rhodochrosite, Serpentine, Topaz, Kyanite, Peridot, Epidote, Fluorspar, Enstatite, Calcite |
| Paper 4 | Gemstone Grading & Enhancement Techniques |
| | 5. Forms, Twinning, Growth Features, External and Internal Features 6. International Grading of Diamonds (4 C), Colour, Clarity, Cut, Carat: Fluorescence Gemstone Synthesis & Enhancement 9. Synthesis Methods 10. Identification of synthetic gemstones, Ruby, Blue Sapphire, Yellow Sapphire, Emerald, Cubic Zirconia, Glass Paste, Moissanite, Synthetic Quartz, Synthetic Diamond, HTPT, CVD 11. Gemstone enhancement, methods 12. Identification of enhancement and its disclosure |
| Lab Course 2 | Gemology II |
| | Gemological identification, appraising of natural, synthetic and enhanced gemstones. |
| Semester 3 | |
| Paper 5 | Gem Cutting & Polishing Techniques |
| | 6. History of Gem cutting & Polishing 7. Steps of gem cutting & polishing, cleaving, sawing, bruising, cutting & polishing 8. Introduction to different gem cutting & polishing instruments 9. Different shapes & cuts and their specifications 10. Introduction to diamond cutting & polishing techniques |
| Lab Course 3 | Gemology III |
| | Practical learning of various methods of gem cutting & polishing Making different cuts and shapes |
| Semester 4 | |
| Paper 6 | Jewellery Designing & Techniques |
| | 6. History, types of jewellery, metallurgy & metal texture, making alloys, identifying jewellery metals, jewellery manufacturing techniques, wax molding, filing, setting, engraving techniques, jewellery enamelling 7. Diamond, gem (studded), gold, silver jewellery manufacturing techniques 8. Jewellery designing, designing various types of jewellery for men, women and children 9. Designing for international and domestic markets 10. Introduction to CAD Jewellery designing |
| Lab Course 4 | Gemology IV |
| | Goldsmith workshop training in jewellery manufacturing Concept of Jewellery designing: sketching, CAD application Submission of Project Report |
| Semester 5 | |
| Paper 7 | Industrial Operations |
| | 1. Operation: Gem/ Diamond cutting & polishing units 2. Operation: Jewellery manufacturing units 3. Operation: Colour stone, diamond marketing units 4. Operation: Jewellery marketing units |

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| | <ul style="list-style-type: none"> 5. Operation: Domestic & International Promotional Techniques 6. Scope of gem & jewellery industries in India and Chhattisgarh 7. Scope of gem/ diamond cutting & polishing units in India and Chhattisgarh 8. Natural raw material – raw gems availability in India and with special reference to Chhattisgarh & surrounding states 9. Leadership, management training program, HRD, Sales, Production, Quality control 10. Role of GJEPC, MMTC, NMDC, Hindustan Diamond Trading Company, DTC in gem & jewellery industry |
| Lab Course 5 | Gemology V |
| | Project on gem & jewellery industry Interaction, exposure to gem & jewellery industry |
| Semester 6 | |
| Paper 8 | Project Work & Vocational Training |
| | Industry based training program on production, sales, marketing, supervision and quality control |
| Lab Course 6 | Gemology VI |
| | Project Work, Preparation of Project Report & Viva voce |




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