

MAHAKAUSAL UNIVERSITY, JABALPUR (M.P.)



ज्ञानं महाकौशलम्

SYLLABUS

For

B.Sc. in Fire Safety and Hazards Management

Course Code: BBFS

Department of Fire Safety & Disaster Management

Faculty of Science

Duration of Course : 3 Year

Examination Mode : Yearly

Examination System : Non Grading

Mahakaushal University, Jabalpur (M.P.)

2021-2024



Mahakaushal University, Jabalpur (M.P.)

Department of Higher Education Govt. Of M.P.

Under Graduate year wise syllabus

As recommended by central board of studies and approved by

The governor of M.P.

उच्च शिक्षा विभाग, म.प.शासन

स्नातक कक्षाओं के लिये वार्षिक पद्धति अनुसार पाठ्यक्रम

कन्दोय अध्ययन मण्डल द्वारा अनुशसित तथा म.प. के राज्यपाल द्वारा अनुमोदित

सत्र: 20

Class	:	B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- I Year
Subject	:	Foundation Course (आधार पाठ्यक्रम)
Paper	:	I
Paper Name	:	हिन्दी भाषा और नैतिक मूल्य (Hindi Language & Moral Values)
Compulsory/Optional:	:	Compulsory
Max Marks	:	नियमित (Hindi Language = 25) +(Moral Values = 05)+ CCE 05 = 35

Particulars/विवरण

Unit-I	हिन्दी भाषा 1. स्वतंत्रता प्रकारती (कविता) – जयशकर पसाद 2. पृष् की अभिलाषा (कविता) – माखनलाल चतुर्वेदी 3. वाक्य संरचना और अशुद्धियाँ (संकलित)
Unit-II	हिन्दी भाषा 1. नमक का दरगा (कहानी) – पमचंद 2. एक थ राजा भाज (निबंध) – डॉ. त्रिभुवननाथ शकल 3. पर्यायवाची, विलाम, एकांथी, अनेकांथी एवं शब्दयुगम शब्द (संकलित)
Unit-III	हिन्दी भाषा 1. भगवान बुद्ध (निबंध) – स्वामी विवकानंद 2. लाकतंत्र एक धर्म ह (निबंध) – डॉ. सवपल्ली राधाकृष्णन 3. नही रूकती ह नदी – हीरालाल बाछातिया 4. पल्लवन
Unit-IV	हिन्दी भाषा 1. अफसर (निबंध) – शरद जाशी 2. हमारी सांस्कृतिक एकता (निबंध) – रामधारी सिंह दिनकर (एक भारत श्रष्ट भारत के अन्तर्गत) 3. संक्षेपण (संकलित)
Unit-V	नैतिक मूल्य 1. नैतिक मूल्य परिचय एवं वर्गीकरण (आलख) – डॉ. शशि राय 2. आचरण की सभ्यता (निबंध) – सरदार पणसिंह 3. अतज्ञान और नैतिक जीवन (लख) – स्वामी श्रद्धानंद

नाट:-नियमित विद्याथियां के लिए 30 अंका की संद्वातिक परीक्षा तथा 05 अंका का आंतरिक मल्यांकन हांगा

अक विभाजन – नियमित विद्याथिया के लिए कुल 30 अक

खण्ड – अ – पत्यक इकाई सं एक वस्तुनिष्ठ पश्न 1 X 5 = 5

खण्ड – ब – इकाई एक सं चार तक तीन लघु उत्तरीय पश्न आंतरिक विकल्प के साथ 3 X 3 = 9

खण्ड – स – इकाई दा सं पांच तक चार दीघ उत्तरीय पश्न 4 X 4 = 16



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सत्र: 20

Class	:	B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- I Year
Subject	:	Foundation Course (आधार पाठ्यक्रम)
Paper	:	II
Paper Name	:	English Language
Compulsory/Optional:	:	Compulsory
Max Marks	:	30 + Internal Assessment (5) = 35

Particulars/विवरण

Unit-I	1. Where the mind is without fear : Rabindranath Tagore. 2. The Hero: R.K. Narayan. 3. Tryst with Destiny Jawaharlal Nehru. 4. Indian weavers : Sarojnini Naidu. 5. The portrait of a lady : Khushwant Singh. 6. The Solitary Reaper : Willian Wordsworth.
Unit-II	Basic Language Skills : Vocabulary, Synonyms, Antonyms, Word formation, Prefixes Suffixes.
Unit-III	Basic Language Skills : Uncountable nouns, verbs, tenses, adverbs.
Unit-IV	Comprehension / Unseen Passage.
Unit-V	Composition and Paragraph writing.

नाट:-नियमित विद्यार्थियों के लिए 30 अंकों की संज्ञात्मक परीक्षा तथा 05 अंकों का आंतरिक मूल्यांकन होगा

अंक विभाजन – नियमित विद्यार्थियों के लिए कुल 30 अंक

खण्ड – अ – प्रत्येक इकाई से एक वस्तुनिष्ठ प्रश्न $1 \times 5 = 5$

खण्ड – ब – इकाई एक से चार तक तीन लघु उत्तरीय प्रश्न आंतरिक विकल्प के साथ $3 \times 3 = 9$

खण्ड – स – इकाई दो से पांच तक चार दीर्घ उत्तरीय प्रश्न $4 \times 4 = 16$



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कन्दोय अध्ययन मण्डल द्वारा अनुशसित तथा म.प. के राज्यपाल द्वारा अनुमोदित

सत्र: 20

Class	:	B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- I Year
Subject	:	Foundation Course (आधार पाठ्यक्रम)
Paper	:	III
Paper Name	:	उद्यमिता विकास (Entrepreneurship Development)
Compulsory/Optional:	:	Compulsory
Max Marks	:	25 + Internal Assessment (5) = 30

Particulars/विवरण

Unit-I	Entrepreneurship Development - Concept and importance, function of enterpriser, Goal determination- Problems Challenges and solutions. उद्यमिता विकास: अवधारणाय एवं महत्व, उद्यमी के कार्य, लक्ष्य निर्धारण, समस्या चर्चातियां एवं समाधान।
Unit-II	Project Proposal - need and Objects – Nature of organization, Production Management, Financial Management, Marketing Management, Consumer Management. परियोजना प्रस्ताव: आवश्यकता एवं उद्देश्य – संगठन का स्वरूप, उत्पादन प्रबंधन, वित्तीय प्रबंधन, विपणन एवं उपभोक्ता प्रबंधन।
Unit-III	Role of regulatory Institutions, Role of development Organizations and self employment oriented schemes, Various growth schemes. उद्यमिता हेतु नियामक संस्थाओं की भूमिका। विकासात्मक संस्थाओं की भूमिका, स्वराजगार मूलक योजनाय, विभिन्न अनुदान योजनाय।
Unit-IV	Financial Management for Project – Financial institution and their role, Capital estimation and arrangement, cost and price determination, accounting management परियोजना हेतु वित्तीय प्रबंधन: पंजी अनुमान एवं व्यवस्था, लागत एवं मूल्य निर्धारण, लखा – जाखा रखना।
Unit-V	Problem of entrepreneur – Problem relating capital, Problem relating Registration, administration problem and how to overcome पंजी संबंधी समस्याएं, पंजीकरण संबंधी समस्याय, पशासकीय समस्याएं एवं उपरोक्त समस्याओं का समाधान।

नाट:-नियमित विद्यार्थियों के लिए 25 अंकों की संव्हातिक परीक्षा तथा 05 अंकों का आंतरिक मूल्यांकन होगा

अंक विभाजन – नियमित विद्यार्थियों के लिए कुल 30 अंक

खण्ड – अ – प्रत्येक इकाई से एक वस्तुनिष्ठ प्रश्न $0.5 \times 5 = 2.5$

खण्ड – ब – प्रत्येक इकाई से एक लघु उत्तरीय प्रश्न आंतरिक विकल्प के साथ $1.5 \times 5 = 7.5$

खण्ड – स – प्रत्येक इकाई से एक दीर्घ उत्तरीय प्रश्न $3 \times 5 = 15$



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Fundamental of Fire (BBFS -- 101)

Unit 1: Anatomy Of Fire; –Fire, Triangle Of Fire, Tetrahedron Of Fire, Classification Of Fires, , Method To Extinguish The Fire, Fire Load.

Unit 2: , Water Fire Tender And Foam Tender-Specifications of Different Types Of Water Tender, Foam Tender, DCP Tender And Crash Fire Tender . Emergency (Rescue) Tender, Turntable Ladders, Hydraulic Platform.

Unit 3: Detection Systems Availability & Usefulness; Abstract, Automatic Fire Detector Overview And Comparison, Spot Type Heat Sensing Fire Detectors, Rate-Of Rise Heat Detectors, Fixed Temperature Heat Detectors, Rate-Compensated Heat Detectors, Combination Heat Detectors, Line-Type Heat Sensing Devices, Smoke-Sensing Fire Detectors, Ionization Spot-Type Smoke Detectors, Photoelectric Spot-Type Light Scattering Detectors, Photoelectric Light Obscuration Smoke Detectors.

Unit 4: Personal Protective Equipment (Ppe's) - Personal Protective Equipment, Types of Protective Equipment, Non Respiratory Equipment, Respiratory Equipments

Unit 5: Building Construction; Main Structural Elements and Parts of Building, Classification of Buildings Based On Occupancy as per NBC.

REFERENCES:

- 1) Carl Goodson, “Essentials of fire fighting” Fire protection publications; 5th edition
- 2) Pann Well, “Fire engineering’s skill drills for Fire Fighter”, Pann Well; 1st & 2nd edition.
- 3) Relevant ISI special appliances and equipments



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Fire Fighting Equipment (BBFS -102)

Unit 1- Fire Extinguisher - Classification Of Fire Fighting Systems, Fire Extinguisher, Water Type Extinguishers , Soda Acid Extinguisher, Water Co₂ Extinguisher, Foam Extinguishers, Co₂ Extinguisher, Dry Chemical Powder (DCP) Type Extinguisher, Halon Type Fire Extinguisher, Standard Tests Of Fire Extinguishers.

Unit 2: Hose & Hose Fittings- Hose, Types, Test Of Hose, Characteristics Of Hose, Care And Maintenance Of Hose, Coupling, Collecting Breeching, Hose Bandage,

Unit 3: Valves- Valves, Function, Gate Valves, Rising Stem Gate Valve, Limitation Of Gate Valve, Ball Valve, Butterfly Valve, Foot Valve, Air Release Valve, Non Return Valve, Landing Valves, Valve Selection Considerations.

Unit 4: Ladder - Types of Ladders, Use of Ladders, material of ladders and its advantages and disadvantages of ladders material, maintenance of various ladders.

Unit 5: B A Set- Breathing Apparatus, Definition Of Types, Working Procedure Of BA Set & Standard Instruction, Distress Signal Units.

REFERENCES:

1. Carl Goodson, "Essentials of fire fighting" Fire protection publications; 5th edition
2. Pann Well, "Fire engineering's skill drills for Fire Fighter", Pann Well; 1st & 2nd edition.
3. H.M.S.O. London manuals



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Applied Chemistry (BBFS -103)

Unit:-1 Anatomy Of Fire; Triangle Of Fire, Tetrahedron Of Fire, Life Cycle Of Fire, Chain Reaction, Chain Reaction Steps, Combustion, Role Of Fuel In Combustion, Role Of Temperature In Combustion, Role Of Oxygen In Combustion, Chain Reaction, Flash Point, Fire Point, Short Note: Flash Point, Experiment Based On Flash Point And Fire Point Determination, Combustion In Natural Fires, Different Forms Of Natural Fire, Spontaneous Auto Ignition Temperature , Ignition Point , Auto Ignition,

Unit:- 2 Heat In Chemical Reaction; Bomb Calorimeter, Describe The Experiment To Determine The Specific Heat Of Given Substance (Copper), Latent Heat, Calorific Value, Delong's Formula, Types Of Gaseous Flames, Premixed Vs Diffusion Flames, Stationary Vs Propagating Flames, Laminar Versus Turbulent Flames, Deflagration Vs Detonation, Radiation From Flames, Heat Transfer And Burning Rates In Fire

Unit: 3 Basics Of Explosions; Common Ignition Sources, Ignition Hazards, Ignition Sources, Combustibility Hazards, Material Properties, Ambient Conditions, Resulting Spread Of Flame, Fire Properties Of Common Material- Ammonia, Ammonium Nitrate, Benzene, Carbon Dioxide, Carbon Monoxide, Chlorine, Chloroform, Hydrochloric Acid, Hydrogen, Oxygen, Sulphuric Acid, Solvent Naphtha.

Unit:-4 Basic Chemical Kinetics; Chemical Kinetics (Or Kinetics Of Chemical Reaction), Rate Of Chemical Reaction (Velocity), Rate Of Chemical Reaction (Velocity), Order Of Reactions, Zero Order Reaction, First Order Reaction, Second Order Reaction, Third Order Reaction, Nth Order Reaction

Unit:-5 Basic Chemical Kinetics; Arrhenius Equation, Law Of Mass Action, Homogeneous Reactions, Batch Reactor, Single External Jacket, Factors Influencing Rate Of Reaction, Thermal Explosion Theory, Catalytic Oxidation, Anti Oxidant, Fire Retardants,



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Applied Physics (BBFS -104)

Unit:-1- Introduction; Physics, Systems Of Units, Fundamental & Supplementary Units Of Si, Practical Norms For The Use Of Si Systems, Dimension & Dimensional Formula, Dimensional Analysis, Use Of Dimensional Analysis, Limitations Of Dimensional Analysis, Some Important Practical Units, Vector, Laws Of Vector Addition, Laws Of Vector Multiplication, Properties Of Fluids.

Unit:2-Hydrostatics; Fluid, Hydrostatic Paradox, Pascal's Law, Buoyancy, Archimedes's Principal, Intermolecular Forces, Molecular Range, Surface Of Influence, Surface Film, Surface Tension, Surface Energy, Angle Of Contact, Capillarity, Stream Line, Tube Of Flow, Laminar Flow, Turbulent Flow.

Unit:3-Thermodynamics-Thermodynamics, Thermodynamically System, Thermodynamically Variables, Thermodynamically Equilibrium, Work Done By A Thermodynamically System, Joule's Law, Zeroth Law Of Thermodynamics, First Law Of Thermodynamics, Sign Convention, Second Law Of Thermodynamics.

Unit:-4 Thermodynamics- Reversible Process, Irreversible Process, Thermodynamic Processes, Cyclic Process, Heat Engine, Types Of Heat Engine, Expansion & Compression Of Gases.

Unit:-5 X-Rays And Radioactivity; Discovery Of X-Rays, Production Of X-Rays, Properties Of X-Rays, Uses Of X-Rays, Radioactivity- Characteristic Properties Of Radioactive Radiations, Properties Of Radiations, Important Terms.



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Industrial Safety Management (BBFS-

105)

Unit 1: Safety Management-Concept Of Safety, Industrial Accidents, Reasons For Accident Prevention, Function Of Safety Management, Safety Organizations, Objectives Of Safety Organizations, Role Of Industrial Organization (Safety), Essential Requirements Of Safety Programme, Plant Safety Rules And Procedures, Formulation Of Rules, Types Of Rules, Violation Of Rules, Reduction Of Hazards.

Unit 2: Material Handling- Kinetics Of Manual Handling, Hazards Due To Lifting Loads, Techniques And Working Methods, Correct Method Of Lifting, Straight Back Lifting, Bent Back Lifting, Physical Work Capacity And Ages Of Male And Female, Load Lifting Techniques, Carrying Object Of Different Size And Shapes, Minimize Ergonomic Hazards With Material Handling, Safe Use Of Accessories For Manual Handling.

Unit 3: Electrical Safety- Definitions- Current, Voltage, Ohm's Law, Earthing, Fuse..Etc, Safety Measures For Electrical Work, Electrical Work In Hazardous Area, Classification Of Hazardous Areas, Electrical Shock Treatment, Flameproof Electrical Equipment, Overload And Short Circuit Protection,

Unit 4: Electrical Safety- Hazards And Control Of Static Electricity Control Of Static Electricity, Essential Safety Points To Be Checked At Various Electrical System, Switch Room – Sub –Station Building, Panel Board, Substation/ Switch Yard, Generators, Battery.

Unit 5: Safety In Miscellaneous Industries- Hazards And Safety Measures For Welding Process, Types Of Welding Processes, Precaution And Safety, Fertilizer Industry, Pesticides Industry, Lethal Dosages, Manipulation Process And Their Hazards And Controls, Textile Industry, Steel Industry, Chemical Hazards.

REFERENCES:

Fundamentals of Industrial safety & health by K.U. Mistry.

Factories Act 1948



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Search & Rescue Techniques and Paramedics (BBFS-106)

Unit: 1 Introduction-Introduction To Search Technique, Correct Method Of Searching A Room, Factors Influencing Search & Rescue, Types Of Searches, Factors While Searching, Rescue Technique, Shelter In Place, Exit Assist, Rescue By Fireman, Fireman's Lift, Rescue Using Fire Services Equipments, Ladders And Hydraulic Platforms, Requisite Qualities Of Rescuer, Different Rescue Scenarios.

Unit-2: Confined Space & Their Hazards- Defining Confined Space, Hazard Recognition, Permit Required Confined Spaces, Causes, Flammable /Toxic Atmosphere, Flammable Range, Effects Of Reduced Oxygen, Physical Hazards, Entry Requirement, Type Of Permits, Equipments Needed At Confined Space Entry, Air Monitoring Equipments, Case Studies, Ventilation And Inerting, Rescue Equipments & Accessories. Entry rescue, Non entry rescue

Unit-3: On site Emergency Planning

On-site Emergency Plan, Emergency Alarm System, Emergency Control Room, Key personnel, Emergency Control Program, Off-site Emergency Plan, Mutual Aid Scheme, Emergency Evacuation, Security and Media management.

Unit-4: Various Rescues Scenarios- Rescue In Mines And Shafts, Road Accident (Highway) Rescue, Entry Into Vehicle, The Type Of Injury Depends, Rescue From High Rise Buildings, Rescue Using Chair Knot, Collapse Of Building/ Judgement Of Collapse, Precautions While Rescue, Rescue Problems In Case Of High Rise Building, Rescue In Case Of Poisonous Gas Leak, Rescue In Sewer Line, Rescue In Case Of Electrical Appliances.

Unit-5: Paramedics- Human Anatomy, Vital Organs, First Aid, Aims, Responsibility Of First Aider, Principles Of First Aid, Main Three Emergencies, Wounds, Bleeding, Dressings & Bandages, Types Of Bandages, Types Of Injuries, Electric Shock, Electric Burn, Effect On Heart, Toxic Gases, Cardiac Massage, Burns, Helping A Person Whose Clothes Have Caught Fire, Management Of Burns.

References:

1. Carl Goodson, "Essentials of fire fighting" Fire protection publications; 5th edition.
2. Pann Well, "Fire engineering's skill drills for Fire Fighter", Pann Well; 1st & 2nd edition.
3. Guy R. Colonna, "Fire protection guide to hazardous material", NFPA; 14TH edition.
4. Joe varela, "Hazardous Material handbook for Emergency Responders", Oguard.
5. Penn Well, "Technical rescue operation", volume- II; Larry Collins.
6. The manual of fire ship – 6 – A by HMSO
7. Elementary principles of rescue by Got. Of India, ministry of Home Affairs
8. Rescue Service Manual by HMSO
9. Rescue –Civil defense handbook by HMSO
10. Rescue tender for Airfields by ISI
11. Relevant ISI special appliances and equipments
12. Manual of fireman ship book no. 244

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सत्र: 20

Class	:	B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- II Year
Subject	:	Foundation Course (आधार पाठ्यक्रम)
Paper	:	I
Paper Name	:	हिन्दी भाषा और नैतिक मूल्य (Hindi Language & Moral Values)
Compulsory/Optional:	:	Compulsory
Max Marks	:	नियमित (Hindi Language = 25) +(Moral Values = 05)+ CCE 05 = 35

Particulars/विवरण

Unit-I	हिन्दी भाषा 1. वह ताड़ती पत्थर (कविता) – सयकान्त त्रिपाठी निराला 2. दिमागी ग्लामी (निबंध) – राहुल साकृत्यायन 3. वर्ण – (स्वर- व्यंजन, वर्गीकरण, उच्चारण स्थान)
Unit-II	हिन्दी भाषा 1. नारीत्व का अभिशाप (निबंध) – महादेवी वर्मा 2. चीफ की दावत (कहानी) – भीष्म साहनी 3. विराम चिन्ह – (संकलित)
Unit-III	हिन्दी भाषा 1. चली फगुनाहट बार आम (ललित निबंध) – विवकी राय 2. इन्द्रधनुष का रहस्य (वैज्ञानिक लेख) – डॉ. कपरमल जैन 3. सधि – (संकलित) 4. पल्लवन
Unit-IV	हिन्दी भाषा 1. सपना की उड़ान (परक निबंध) – ए.पी.ज. अब्दुल कलाम 2. हमारा सारमण्डल (संकलित) 3. समास (संकलित)
Unit-V	नैतिक मूल्य 1. शिकागा व्याख्यान (व्याख्यान) – स्वामी विवेकानंद 2. धर्म और राष्ट्रवाद (लेख) – महर्षि अरविन्द 3. सादगी (आत्मकथा) – महात्मा गांधी 4. चित्त जहाँ भय शून्य (कविता) – रवीन्द्रनाथ टैगोर

नाटः-नियमित विद्यार्थियों के लिए 30 अंकों की संव्हातिक परीक्षा तथा 05 अंकों का आंतरिक मूल्यांकन हांगा

अंक विभाजन – नियमित विद्यार्थियों के लिए कुल 30 अंक

खण्ड – अ – पत्यक इकाई सं एक वस्तुनिष्ठ पश्न 1 X 5 = 5

खण्ड – ब – इकाई एक सं चार तक तीन लघु उत्तरीय पश्न आंतरिक विकल्प के साथ 3 X 3 = 9

खण्ड – स – इकाई दा सं पाच तक चार दीर्घ उत्तरीय पश्न 4 X 4 = 16



Mahakaushal University, Jabalpur (M.P.)

Department of Higher Education Govt. Of M.P.

Under Graduate year wise syllabus

As recommended by central board of studies and approved by

The governor of M.P.

उच्च शिक्षा विभाग, म.प.शासन

स्नातक कक्षाओं के लिये वार्षिक पद्धति अनुसार पाठ्यक्रम

कन्द्रीय अध्ययन मण्डल द्वारा अनुशसित तथा म.प. के राज्यपाल द्वारा अनुमोदित

सत्र: 20

Class	:	B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- II Year
Subject	:	Foundation Course (आधार पाठ्यक्रम)
Paper	:	II
Paper Name	:	English Language
Compulsory/Optional:	:	Compulsory
Max Marks	:	30 + Internal Assessment (5) = 35

Particulars/विवरण

Unit-I	1. Tree: Tina Morris. 2. Night of the Scorpion: Nissim Ezekiel. 3. Idgah : Premchand (translated by khushwant Singh). 4. Letter of God : G.L. Swanteh (translated by Donald A. Yates). 5. My Bank Account : Stephen Leacock. 6. God sees the truth but waits : Leo Tolstoy.
Unit-II	Basic English Language : Idioms, Proverbs and Phrasal Verbs, Tenses, Prepositions, Determiners, Verbs Articles, Nouns & Pronouns.
Unit-III	1. Short Essay on given topics. 2. Correspondence Skills (Formal & Informal letters and Application)
Unit-IV	Translation of sentences / passage English to Hindi and Hindi to English.
Unit-V	Drafting CV.

नाट:-नियमित विद्यार्थियों के लिए 30 अंकों की संवैधानिक परीक्षा तथा 05 अंकों का आंतरिक मूल्यांकन होगा

अंक विभाजन – नियमित विद्यार्थियों के लिए कुल 30 अंक

खण्ड – अ – प्रत्येक इकाई से एक वस्तुनिष्ठ प्रश्न $1 \times 5 = 5$

खण्ड – ब – इकाई एक से चार तक तीन लघु उत्तरीय प्रश्न आंतरिक विकल्प के साथ $3 \times 3 = 9$

खण्ड – स – इकाई दो से पांच तक चार दीर्घ उत्तरीय प्रश्न $4 \times 4 = 16$



Mahakaushal University, Jabalpur (M.P.)

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उच्च शिक्षा विभाग, म.प.शासन

स्नातक कक्षाओं के लिये वार्षिक पद्धति अनुसार पाठ्यक्रम

कन्दोय अध्ययन मण्डल द्वारा अनुशंसित तथा म.प. के राज्यपाल द्वारा अनुमोदित

सत्र: 20

Class	:	B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- II Year
Subject	:	Foundation Course (आधार पाठ्यक्रम)
Paper	:	III
Paper Name	:	पर्यावरण अध्ययन (Environmental Studies)
Compulsory/Optional:	:	Compulsory
Max Marks	:	30

Particulars/विवरण

Unit-I	<p>Study of Environment and Ecology :</p> <p>(a.) Definition and importance. (b.) Public participation and public awareness. (c.) Ecology – Introduction. (d.) Ecosystem – Concepts, components, structure & function, energy flow. food chain. food web, ecological pyramids and types.</p> <p>पर्यावरण एवं पारिस्थितिक अध्ययन :</p> <p>(क.) परिभाषा एवं महत्व (ख.) जनभागीदारी एवं जनजागरण (ग.) पारिस्थितिकी – पस्तावना (घ.) पारिस्थितिक तन्त्र – अवधारणा, घटक, संरचना तथा कार्यपणाली ऊर्जा का प्रवाह, खाद्य श्रृंखला, खाद्य जाल, पारिस्थितिक पिरामिड तथा प्रकार।</p>
Unit-II	<p>Environmental Pollution and Population :</p> <p>(a.) Air, water, noise, Heat and nuclear pollution. definition, causes, effect and prevention of pollution. (b.) Population growth, disparities between countries. (c.) Population explosion, family welfare programme. (d.) Environment and human health. (e.) Cleanliness and disposal of domestic waste.</p> <p>पर्यावरण प्रदूषण तथा जनसंख्या</p> <p>(क.) वायु, जल, ध्वनि, ताप एवं आणविक प्रदूषण— परिभाषा प्रदूषण के कारण प्रभाव एवं रोकथाम। (ख.) जनसंख्या – वृद्धि, राष्ट्रों के बीच अन्तर। (ग.) जनसंख्या – विस्फोट, परिवार कल्याण कार्यक्रम। (घ.) पर्यावरण और मानव स्वास्थ्य। (ङ.) स्वच्छता एवं घरेलू कचरे का निष्पादन।</p>

Unit-III	<p>Natural Resources, Problems and Conservation :</p> <p>(a.) Water Resources. (b.) Forest Resources. (c.) Land Resources. (d.) Food Resources. (e.) Energy Resources.</p> <p>प्राकृतिक संसाधन, समस्याएं तथा संरक्षण :</p> <p>(क.) जल संसाधन। (ख.) वन संसाधन। (ग.) भूमि संसाधन। (घ.) खाद्य संसाधन। (ङ.) ऊर्जा संसाधन।</p>
Unit-IV	<p>Bio-diversity and its Protection</p> <p>(a.) Introduction- Genetic, species and ecosystem diversity. (b.) Value of bio-diversity – Consumable use : Productive use. Social, Moral and Aesthetic values (c.) India as a nation of mega bio-diversity centre. bio-diversity at national and local levels. (d.) Threats to bio-diversity – Loss of habitat, poaching of wildlife, man and wildlife conflicts.</p> <p>जैव विविधता आर उसका संरक्षण :</p> <p>(क.) पस्तावना : अनुवांशिक, जातीय तथा पारिस्थितिक विविधता। (ख.) जैव विविधता कामल्य – उपभाग्य उपयोग, 3 उत्पादक उपयोग सामाजिक, नैतिक तथा सान्दर्यगत मूल्य। (ग.) वृहत जैवविविधता केंद्र क राष्ट्र रूप में भारत, राष्ट्रीय तथा स्थानीय स्तरां पर जैव विविधता। (घ.) जैव विविधता क खतरे – आवासीय हानि, वन्य जीवन में अनाधिकार घसपठ तथा मानव त्य जीवन – संघष।</p>
Unit-V	<p>Disaster Management and Environment and Environmental laws :</p> <p>(a.) Disaster Management – flood, earthquake, cyclones and landslides. (b.) Conservation of laws for air and water pollution. (c.) Wildlife conservation laws. (d.) Role of information technology in protecting environment and health.</p> <p>आपदा पबंधन तथा पर्यावरण संरक्षण कानून :</p> <p>(क.) आपदा पबंधन– बाढ, भूकंप चकवात एवं भस्खलन। (ख.) वायु तथा जल पदषण– संरक्षण कानून। (ग.) वन्य पाणी संरक्षण कानून। (घ.) पर्यावरण तथा स्वास्थ्य रक्षा में सचना पांद्यागिकी की भूमिका।</p>

नाटः–नियमित विद्याथिया क लिए 25 अंका को सैद्धांतिक परीक्षा तथा 05 अंका का आंतरिक मूल्यांकन हागा

Marks distribution for paper setters: for regular students

Section A :	Objective Type	0.5 X 5 = 2.5
Section B :	Short Answer Type	1.5 X 5 = 7.5
Section C :	Long Answer Type	3 X 5 = 15
	Total	25



ज्ञानं महाकौशलम्

Mahakaushal University, Jabalpur (M.P.)

Fire Protection System (BBFS-201)

Unit 1: Introduction to various fire protection system- Introduction, Why fire protection systems are needed, Passive fire protection systems, Fire doors, Fire proofing materials, Dampers, Position of extinguishers, fire blankets, fire buckets and hose reel hose.

Unit 2: Hydrant System-Introduction & legal implications and standards used in India and abroad, Use of hydrant system, Ring mains, Layout of system from pump house to hydrant post, Outdoor hydrant system designing and indoor riser, Dry and wet risers, Main pump, booster pump, jockey pump. Piping: above ground/ underground.

Unit 3: Sprinklers, Spray, Deluge valve, HVWS and MVWS-Introduction and development, legal Implications and standards used, Hydrant Vs sprinkler system, Use and working of sprinklers, Types of sprinklers heads: pendent, upright and wall type. Types of sprinklers system by operation & layout, Nozzle description, Activation temperature, Operation and alarm valve description, What is spray system and its use, DV introduction and its uses, Drenchers, MVWS and HVWS – Intro and use.

Unit 4: Gaseous and DCP System -Introduction to types of gaseous systems-CO₂, FM-200, Inergen, Halon, Application and properties and operation of gaseous systems, Application and properties and operation of DCP systems.

Unit 5: IS Specifications- Emergency Rescue Tender, Water Tenders, Foam Tender, CFT, Various Fire Extinguishers.

References:

- 1- Fire protection manual- tariff Advisory Committee
- 2- Design of water based fire protection system- Robert M. Gagnon
- 3- Fire protection engineering in building design- Jane I. Lataille.
- 4- Fire Detection and Alarm system- M. M. Bhuskute



ज्ञानं महाकौशलम्

Mahakaushal University, Jabalpur (M.P.)

Fire Prevention & Protection (BBFS- 202)

Unit 1: Basic Philosophy of Fire Safety Management & Fire Prevention-Fire prevention: Basic Philosophy, Principles of fire prevention, safety sampling, safety survey, incident recall technique (IRT), job safety analysis, The concept of fire safety inspection, audit, and checklist, Total loss control, damage control system, Hazard analysis, system safety analysis techniques (THERP), RISK Tolerability, Work permit system definition, classification & procedure.

Unit 2: Fire Safety Laws & legislations-Fire Service Act 1947, Petroleum Act – 1934, Gas cylinder rules – 1981. OISD 115/116, Pandals and temporary structure Act, Life safety code.

Unit 3: Hazards of fire propagation-Hazard of fire propagation, Concept of separation and compartmentalization. Possibilities of fire propagation through various features of buildings and Preventive measures through ducts and openings, Need & concept methods of segregation, Concept of Fire rating of walls (As per BS), roofs and intermediate floors, Concept and importance of fire proofing using mortar, RCC, fireproofing coating, fire paints.

Unit 4: Fire insurance-Introduction, Expenses caused, Losses and expenses not covered/perils properties not covered, Additional premiums for perils and expenses, Documents required by insurer, Fire loss management in industry, Fire loss control program, Sequence of risk control

Unit-5: Fire case studies- Detailed analysis of fire case studies, especially those fires where large number of people have been involved. Interaction and relative value of the components of escape route design, especially smoke movement and control.

References :

1. General Fire Hazards and Fire Protection by J.J. Williams.
2. Fire Prevention Notes for Industrial Premises by F.P.A.
3. Fire Prevention Hand Book by Kesteren Fire Brigade



Mahakaushal University, Jabalpur (M.P.)

Hydraulics & Pumps (BBFS- 203)

Unit-1 Basics of Hydraulics-Fire Hydraulics & its application, Fluid Properties, Flow & types of flow, Pressure & its measurement, velocity measurement, Discharge measurement.

Unit-2 Flow through Pipe-Pipe, Head losses in pipes, Series & Parallel Pipes, Water hammer Effect, Friction loss, C- factor, Valves, Types of Valves. Calculation of Water velocity in Pipes, Hazen Williams pressure loss formula, K – factor formula, Bernoulli's Theorem, Hydrostatics and hydraulic calculation.

Unit-3 Pumps-Pumps, Types of Pumps, Reciprocating Pump, Centrifugal Pump, Difference between Reciprocating & Centrifugal Pump, Pump Priming, Cavitations.

Unit-4 Hydraulic Machines-Hydraulic Machines, Hydraulic Crane, Hydraulic Lift, Hydraulic Ram, Torque Converter, Air lift Pump, Jet Pump.

Unit-5 Hydraulics: Measures of flow, pressure and pressure drop. KINEMATICS OF FLUIDS FLOW : Type of flow, path lines and stream lines, equation of continuity, one dimensional method of flow analysis.

References:

1. Fluid mechanics and hydraulics machines- R K Bansal
2. Pump Selection and application : Tyler C. Riches.
3. Pump Operators, Handbook : I.S. University of Science and Technology.
4. Fire Pumps and Hydraulics : I.E. Ditts and T.M. Harris.
5. Hydraulic Mechanics: Dr. J.Lal



ज्ञानं महाकौशलम्

Mahakaushal University, Jabalpur (M.P.)

Automobile System (BBFS- 204)

Unit-1 Basics of Automobiles:

Automobiles, Prime Movers, I.C. Engine & its Classification, Petrol engine, Diesel engine, Different between Two Stroke & Four Stroke Engine, Comparison of Petrol & Diesel Engines.

Unit-2 Different parts of Automobiles:

Brakes, Clutch, Tyres, Wheel, Chassis, Axle & Differential, Fuel Supply Systems, Fuel Injection Systems, Supercharging.

Unit-3 Different Operating Systems of Automobiles:

Fuel Injection System for Diesel Engines, Suspension System, Steering System, Automobile Lubrication System, Automobile Cooling System.

Unit-4 Features of Automobiles:

Power Take off, Ground Clearance, Angle of Approach & Departure, Grade ability, New Automobile Safety Features.

Unit-5 Various Automobile safety devices

References:

1. Automobile chassis and body construction, Operation and Maintenance by Wills H. Crouse.
2. Automobile Machines – Principles and Operations by W.H. Crouse.
3. Automobile Engine overhaul by A.W. Judge and Sir Issac Pitman.
4. Automobile Electrical Maintenances by A.W. Judge and Sir Issac Pitman.
5. Heavy Vehicle Automobile Engg. & Safety



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Safety in Various Industries (BBFS- 205)

Unit 1: Construction Industry-introduction of construction industry and its work, Equipments and tools, Man power and material utilization, Fatal accidents case studies, 1. Construction Equipments- a. Ladders and scaffolding b. Working platforms c. working on roofs. 2. Working underground- a. Excavation b. Drilling, blasting and trenching

Unit 2: Hydrocarbon Industries-General awareness of industry and MAH units:

Introduction: Significance of Hydrocarbon/ Petrochemicals, Hazard Awareness, Risk Assessment & Loss Prevention, Appraisal on Material Safety Data Sheets (MSDS), Industrial Hygiene and Occupational Health with reference to Chemical units, Appraisal on MAH categorization with reference to Manufacture, Storage and Import of Hazardous Chemicals Rules (MSIHCR).

Unit 3: Fire risk management in chemical industry- Introduction to Fires/ Explosion hazards in Chemical process units, Area Classification, Active and Passive Fire Protection Features, Fire prevention/ suppression features, Specific statutes on Fire Safety for Chemical Industries, Permit-to-work system (Hot work/ Confined space entry/ Excavation etc)

Unit 4: Safety in Engineering Industries- Introduction to hot & cold processes, Steel manufacture, Hazards and safety measures, Hot working of Metals, Health Hazards and Safety Measures
Hot Rolling Mill operations, forging operations, Preventive Maintenance of forging machines.

Unit 5: Need of safety in Engineering Industries:

Cold working of metals, Hand & foot operated process, Power process, Hydraulic & pneumatic process, Press brakes, Metal shears & slitters, forming rolls, bending & forming machine, Metal cutting machine, Cold rolling mills, Wire drawing operations, Safety in use of Machine Tools, Turning Machine, Boring or Drilling, Milling Machine, Grinding Machines, Planning & Shaping Machines, Broaching Machines, Slotting Machine.

References :

1. Fundamental of Industrial safety and Health – K U Mistry.
2. Accident Prevention manual for Industrial Operations, NSC, Chicago 1982.
3. Principles of Industrial managements by Kootaz & Donnel.
4. Brawn D. B. , system analysis & design for safety, Prentice Hall inc, New Jersey.
5. Lees, F.P., loss prevention in process industries, Butter worth's, New Delhi 1986



ज्ञानं महाकौशलम्

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Laws related to Safety, Health & Environment (BBFS- 206)

Unit 1

Factories Act 1948, M.P. Factories rules 1962. Madhya Pradesh Control of Industrial Major Accident Hazard Rules 1999.

Unit 2

Indian Explosive Act 1884, Calcium Carbide Rules 1987. Static & Mobile Pressure Vessel Rules. Fire prevention Legislation. Fire Insurance Assessment.

Unit 3

Environment (Protection) Act 1986, MSIHC Rules. Water (Prevention and Control of Pollution) Act. Air (Prevention and control of pollution) Act. Chemical Accidents (Emergency, Planning, preparedness and response) Rules 1996.

Unit 4

Other Important Legislations. Boilers Act 1923, Public Liability Act 1991, Dock workers (Safety, Health & Welfare) Act. Safety & Health provisions of Building & other construction workers (R.E.C.S.) Act 1986 and central rules 1998 and Mines Act.

Unit 5

Gas Cylinder Rules 2004, Petroleum Act 1934 with Rules 2002, Electricity Act 2003 with rules.

References:-

1. All Relevant Acts & Rules.
2. Fire Services Acts & rules of different states.
3. Gen. Fire Insurance.
4. Safety and cases by Frank P Lecs.
5. Safety in chemicals & Petrochemical Industries.



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स्नातक कक्षाओं के लिये वार्षिक पद्धति अनुसार पाठ्यक्रम

कन्दोय अध्ययन मण्डल द्वारा अनुशंसित तथा म.प. के राज्यपाल द्वारा अनुमोदित

सत्र: 20

Class	:	B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- III Year
Subject	:	Foundation Course (आधार पाठ्यक्रम)
Paper	:	I
Paper Name	:	हिन्दी भाषा आर नैतिक मूल्य (Hindi Language & Moral Values)
Compulsory/Optional:	:	Compulsory
Max Marks	:	नियमित (Hindi Language = 25) +(Moral Values = 05)+ CCE 05 = 35

Particulars/विवरण

Unit-I	हिन्दी भाषा 1. मेरे सहयात्री (यात्रा वृत्त) - अमृतलाल बगड। 2. मध्यप्रदेश की लाक कलाएं (संकलित) 3. लाकाकित्तियां एवं मुहावर (संकलित)
Unit-II	हिन्दी भाषा 1. जनसंचार माध्यम (पिन्ट, इलै, एवं साशल मीडिया) 2. टूटते हुए (एकाकी) - सुरेश शक्ल चंद्र 3. सक्षिप्तियां
Unit-III	हिन्दी भाषा 1. पत्रकारिता के विभिन्न आयाम (संकलित) 2. मध्यप्रदेश का लाक साहित्य (संकलित) 3. पत्र लेखन - आवदन, पारूपण, आदेश परिपत्र ज्ञापन, अनुस्मारक (संकलित)
Unit-IV	हिन्दी भाषा 1. राजभाषा, हिन्दी (संकलित) हिन्दी की संवधानिक एवं व्यावहारिक स्थिति 2. दूरभाष आर माबाइल (संकलित) 3. हिन्दी की शब्द सम्पदा (संकलित) 4. अनुवाद : अर्थ पकार एवं अभ्यास
Unit-V	नैतिक मूल्य 1. विश्व के पमुख धर्म एवं महत्वपण विशेषताएं (हिन्दू धर्म, जन धर्म, बौद्ध धर्म, सिक्ख धर्म, इसाई धर्म, इस्लाम धर्म) 2. सत्य के साथ मेरे पयाग (महात्मा गांधी की आत्म कथा का सक्षिप्त संस्करण)

नाट:-नियमित विद्याथियां के लिए 30 अंकां की संव्हातिक परीक्षा तथा 05 अंकां का आंतरिक मूल्याकन हांगा

अंक विभाजन - नियमित विद्याथियां के लिए कुल 30 अंक

खण्ड - अ - पत्यक इकाई सं एक वस्तुनिष्ठ पश्न 1 X 5 = 5

खण्ड - ब - इकाई एक सं चार तक तीन लघु उत्तरीय पश्न आंतरिक विकल्प के साथ 3 X 3 = 9

खण्ड - स - इकाई दा सं पांच तक चार दीर्घ उत्तरीय पश्न 4 X 4 = 16



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स्नातक कक्षाओं के लिये वार्षिक पद्धति अनुसार पाठ्यक्रम

कन्दोय अध्ययन मण्डल द्वारा अनुशसित तथा म.प. के राज्यपाल द्वारा अनुमोदित

सत्र: 20

Class	:	B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- III Year
Subject	:	Foundation Course (आधार पाठ्यक्रम)
Paper	:	II
Paper Name	:	English Language
Compulsory/Optional:	:	Compulsory
Max Marks	:	30 + Internal Assessment (5) = 35

Particulars/विवरण

Unit-I	1. Stopping by Woods on a snowy Evening: Robert Frost. 2. Cherry Tree : Ruskin Bond. 3. The Axe : R.K. Narayan. 4. The Selfish Giant : Oscar Wilde 5. On The Rule of the Road : A.G. Gardiner. 6. The song of Kabir : Translated by Tagore
Unit-II	Basic Language Skills : Transformation of sentences, Direct-Indirect Speech, Active. Passive Voice, Confusing Words, Misused words, Similar words with different meaning.
Unit-III	Report Writing, Narration Skills, Narration of events and situations.
Unit-IV	Drafting of E-mails.
Unit-V	Drafting CV.

नाट-नियमित विद्यार्थियों के लिए 30 अंकों की संज्ञात्मक परीक्षा तथा 05 अंकों का आंतरिक मूल्यांकन होगा

अंक विभाजन – नियमित विद्यार्थियों के लिए कुल 30 अंक

खण्ड – अ – प्रत्येक इकाई से एक वस्तुनिष्ठ प्रश्न $1 \times 5 = 5$

खण्ड – ब – इकाई एक से चार तक तीन लघु उत्तरीय प्रश्न आंतरिक विकल्प के साथ $3 \times 3 = 9$

खण्ड – स – इकाई दो से पांच तक चार दीर्घ उत्तरीय प्रश्न $4 \times 4 = 16$



Mahakaushal University, Jabalpur (M.P.)

Department of Higher Education Govt. Of M.P.

Under Graduate year wise syllabus

As recommended by central board of studies and approved by

The governor of M.P.

उच्च शिक्षा विभाग, म.प.शासन

स्नातक कक्षाओं के लिये वार्षिक पद्धति अनुसार पाठ्यक्रम

कन्दोय अध्ययन मण्डल द्वारा अनुशंसित तथा म.प. के राज्यपाल द्वारा अनुमोदित

सत्र: 20

Class	:	B.A./B.Sc./B.Com./B.Sc.(Home Science)/BCA/B.A.(Mgt.) --- III Year
Subject	:	Foundation Course (आधार पाठ्यक्रम)
Paper	:	III
Paper Name	:	कम्प्यूटर के मूल तत्व एवं सूचना प्रौद्योगिकी (Baics of Computer & Information technology)
Compulsory/Optional:	:	Compulsory
Max Marks	:	25 + Internal Assessment (5) = 30

Particulars/विवरण

Unit-I	<p>Introduction to Computer : Basic Organization of Computer system: Block diagram & Functions (Central Processing Unit, Input/ Output Unit, Storage Unit); Characteristics: Capabilities & Limitations. Types of Computing Devices: Desktop Laptop & Notebook smart-Phone, Tablet PC, Server, Workstation & their Characteristics. Primary Memory & Their Types: RAM, ROM, PROM, EPROM EEPROM, Cache Memory.</p> <p>Peripheral Devices : Input Devices : Keyboard Mouse, Trackball, Joystick, Digitizer or Graphic tablet, Scanners, Digital Camera, Web Camera, MICR, OCR, OMR, Bar-code Reader, Voice Recognition device Light pen & Touch Screen. Output Devices : Display Devices (CRT, TFT, LCD, LED, Multimedia Projectors): Video Standard : VGA, SVGA, XGA etc, Impact Printers (Daisy Wheel, Dot Matrix & Line Printer); Non impact printer (Inkjet, Laser, Thermal);</p> <p>Storage Devices : Magnetic Tape, Cartridge, Data Drives, Hard Disk Drives (Internal & External), Floppy Disks, CD, VCD, CD-RW, Zip Drive DVD, DVD-RW, USB Flash Drive, Blue Ray Disc & Memory cards.</p> <p>कम्प्यूटर का परिचय कम्प्यूटर प्रणाली के मूल संगठन : - ब्लॉक आरेख एवं कार्य (कन्द्रीय पाससिंग इकाई, निवेशी/ निगत इकाई, भण्डारण इकाई) अभिलक्षण ; क्षमताएं एवं सीमाएं। कम्प्यूटर युक्तियों के प्रकार : - डस्कटॉप, लैपटॉप एवं नोटबुक, स्मार्ट-फोन, टेबलेट पीसी, सर्वर, वर्कस्टेशन एवं इनके अभिलक्षण। प्राथमिक स्मृति एवं उसका प्रकार :- RAM, ROM, कैश स्मृति। निवेश युक्तियां :- कृजीपटल, माउस, ट्रैकबॉल, जॉयस्टिक, डिजीटाइज्ड अथवा ग्राफिक टेबलेट, स्कैनर, डिजिटल, कैमरा, वब कैमरा MICR, OCR, OMR, बारकोड रीडर, ध्वनि अभिज्ञान युक्तियां लाइट-पेन एवं</p>
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	<p>टच-स्क्रीन</p> <p>निगत यक्तियां :- पदशन यक्तियां (CRT, TFT, LCD, LED, मल्टीमीडिया पांजक्टर), विडिया मानक, VGA, SVGA, XGA आदि। आघात पिटर (डिजीव्हील, डांट-मैट्रिक एव लाइन पिटर) ; मैर आघात पिटर (इकजट, लेजर एव थर्मल) ; प्लाटस (ड्रम एव फ्लैट - बड) ; स्पीकर्स।</p> <p>चम्बकीय टेप काटिज टेप, डाटा ड्राइव हाडडिस्क ड्राइव (आंतरिक एव बाहय) फलापी डिस्क CD, VCD, CD-R, CD-RW, जिप ड्राइव, DVD, DVD-RW यएसबी फ्लैश ड्राइव ब्लू रे डिस्क, स्मृति काड।</p>
Unit-II	<p>Operating System (OS)</p> <p>Dos Basic: FAT, File & Directory Structure and naming rules, Booting process, DOS system files, internal & External Dos Commands.</p> <p>Windows Basics (only elementary ideas):</p> <p>Windows 7 & 8: Desktop, Control Panel: saving, remaining, moving copying and searching files & folders, restoring from recycle Bin. Creating shortcut, Establishing Network Connections.</p> <p>परिचालन पणाली क काय एव प्रकार, आइ-पंड एव स्माअ फान क लिय पयुक्त परिचालन पणालिया स परिचय। डांस, विडांज एव लिनक्स परिचालन पणालिया का पारम्भिक ज्ञान।</p> <p>डांस क मूल तत्व : FAT, फाइल एव डायरेक्ट्री संरचना एव उनक नामकरण क लियम, बटिंग पकिया, डांस पणाली की फाइले। डांस क आंतरिक एव वाहय निदर्श।</p> <p>विडांज क मूल तत्व (कवल पाथमिक जानकारी) : विडांज 7 एव 8 : डस्कटाप, कन्ट्रोल पनल; फाइल एव फाल्डर का नाम परिवर्तन, स्थानांतरण, पतिलिपिकरण आर खांज; रीसायकिल बिन स फाइल एव फाल्डर की पुनः पाप्ति: शांटकट बनाना, नटवक कनेक्शन की स्थापना।</p>
Unit-III	<p>MS Word</p> <p>Text editing and formatting using Word file in various file formats: Previewing documents, Printing document to file / page: Protecting document Editing of selected text, Inserting Deleting and Moving text.</p> <p>Formatting documents: page Layout, Paragraph format, Aligning text and Paragraph, Borders and Shading, Headers and Footers.</p> <p>वर्ड 2007 एव आगामी संस्करण द्वारा पाठ्य सामगी का संपादन एव फॉर्मेटिंग : टेम्पलेट द्वारा दस्तावज बनाना, वर्ड फाइल का विभिन्न फॉर्मेट में संरक्षित करना, दस्तावज का पंवावलाकन, दस्तावज का फाइल अथवा पज पर मुद्रित करना; दस्तावज का संरक्षण, चयनित पाठ्य सामगी का संपादन; पाठ्य सामगी का जाडना, हटाना एव स्थानांतरित करना।</p> <p>दस्तावजा की फॉर्मेटिंग ; पज लेआउट, पंरागाफ फॉर्मेट, पाठ्य सामगी एव पंरागाफ का संरक्षण, बांडर एव शडिंग हंडर एव फुटर।</p>
Unit-IV	<p>MS Power Point & MS Excel :</p> <ul style="list-style-type: none"> <input type="checkbox"/> Creating presentation using slide master and template in various themes & variants. <input type="checkbox"/> Working with slide, move, copy, delete, duplicate, slide layouts, presentation views. <input type="checkbox"/> Format menu: Font, Paragraph, drawing & editing. <input type="checkbox"/> Printing presentation: Print slides, notes, handouts and outlines. <input type="checkbox"/> Saving presentation in different file formats. <input type="checkbox"/> Workbook & worksheet: Entering data into worksheet (General, Number, Currency, Date, Time, Text, Accounting etc.); Renaming, Copying, Inserting, deleting & protecting worksheet. <input type="checkbox"/> Working with Row & Column (Inserting, deleting, Pasting, Resizing & Hiding), Cell & Cell formatting, and Concept of range. <p>माइकासाफ्ट पावरपाइंट और एक्सल</p> <ul style="list-style-type: none"> <input type="checkbox"/> स्लाइड मास्टर आर टेम्पलेट का उपयोग करते हुए विभिन्न थीम्स आर वरिएटस में प्रस्तुति बनाना। <input type="checkbox"/> स्लाइड क साथ कयां करना: नई-स्लाइड बनाना, मूव करना, पतिलिपि बनाना, डिलीट करना डुप्लीकट बनाना, स्लाइड ले-आउट, पजटेशन व्यज। <input type="checkbox"/> फॉर्मेट मेनु: फॉन्ट, पंरागाफ, ड्राइंग आर संपादन। <input type="checkbox"/> विभिन्न फाइल स्वरूपा में प्रस्तुति का संरक्षण।

	<ul style="list-style-type: none"> <input type="checkbox"/> स्लाइड शॉ का पस्तत करना: सटअप स्लाइड शॉ एव रीहस – टाइमिंग। <input type="checkbox"/> वकशीट में कार्य: वकशीट में डाटा (सामान्य, नंबर, करन्सी, डट, टाइम, टेक्स्ट, एकाउंटिंग इत्यादि) पविष्ट करना; वकशीट का नाम बदलना, पतिलिपि बनाना, पविष्ट करना, हटाना तथा रक्षित करना। <input type="checkbox"/> पक्ति और स्तम्भ के साथ कार्य (डालना, हटाना, पस्ट करना, आकार बदलना आर छपना) सल आर सल फॉर्मेटिंग, रेज की अवधारणा।
Unit-V	<ul style="list-style-type: none"> <input type="checkbox"/> Internet: World Wide Web Dial up connectivity, leased line, VSAT, Broad Band, WI-FI, URL, Domain name, Web Dial up Browser (Internet Explorer, Firebox, Google Chrome, opera, UC Browser etc.) Search Engine (Google, Bing, Ask etc); Website: Static & Dynamic; Difference between website & Portal. <input type="checkbox"/> E-mail: Account opening. Sending & Receiving Mails, Managing Contacts & Folders. <input type="checkbox"/> E-mail, Internet & Social Networking Ethics. <input type="checkbox"/> Types of viruses & antivirus. <input type="checkbox"/> Computer security Issues & its protection through firewall & antivirus. <input type="checkbox"/> Making secured online transactions. <p>इंटरनेट – वर्ल्ड-वाइड-वेब, डायलअप कनेक्टिविटी, लीजड लाइन, व्ही, सेट, ब्रॉडबैंड, वायफाई, यूआरएल, डोमेन, नेम वेब-ब्राउजर (इंटरनेट एक्सप्लोरर, फायरफॉक्स, गूगल क्रोम, ऑपेरा, यूसी ब्राउजर इत्यादि); सर्च इंजन (गूगल, बिंग Ask इत्यादि); वेबसाइट: स्थैतिक व गतिकीय; पोर्टल और वेबसाइट में अन्तर। इमेल: खाता खोलना, मेल को भेजना एवं प्राप्त करना, कॉन्टैक्ट्स एवं फोल्डर्स को मैनेज करना। साइबर शिष्टाचार, सुरक्षा और गोपनीयता। इमेल, इंटरनेट एवं सोशल नेटवर्किंग शिष्टाचार। वायरस और एंटीवायरस के प्रकार। कम्प्यूटर सुरक्षा के मुद्दे और फायरवाल व एंटीवायरस के माध्यम से सुरक्षा। सुरक्षित तरीके से ऑनलाइन लेन-देन का निष्पादन करना।</p>

Text Books :

1. PC Software for Windows by R.K. Taxali.
2. Fundamental of Computers by P.K. Sinha.
3. Computer Today by Suresh K. Basandra
4. Computer fundamental s and Architechture by B.Ram.
5. Internet Security by Kenneth Einar Himma, 2007.
6. Internet Security Secrets by John R. Vacca, 2007.

नाट:-नियमित विद्यार्थिया क लिए 25 अंका को सैद्धांतिक परीक्षा तथा 05 अंका का आंतरिक मूल्यांकन हागा

Marks distribution for paper setters: for regular students

Section A :	Objective Type	0.5 X 5 = 2.5
Section B :	Short Answer Type	1.5 X 5 = 7.5
Section C :	Long Answer Type	3 X 5 = 15
	Total	25



ज्ञानं महाकौशलम्

Mahakaushal University, Jabalpur (M.P.)

Explosion & Fire Dynamics (BBFS-301)

Unit 1: Introduction to Explosion Characteristics:

1. Background / introduction-a. Burchfield explosion case study. Other similar explosion incidents
2. Explosion hazards, 3. Stoichiometry for gases-a. Introduction. Calculation for air,c. Calculation for O₂,4. Stoichiometry for general hydrocarbons and wood (Air to fuel ratio), 5. Application of stoichiometry-a. Naphtha storage tank example, b. Burner startup. Boiler firebox explosion.

Unit 2: Flammability limits and Theories:

1. Lean limit and Rich limit, 2. LEL & UEL measurement techniques and equipments, 3. Minimum ignition energy, 4. Relation between auto-ignition temperature and flash point, 5. Effect of temperature and pressure on flash point, 6. Classification of flammable materials, 7. Vapour tank explosion, a. TWA flight 800 Disaster.

Unit 3: Explosion Prevention:

1. Explosion prevention techniques-a. Ventilation. Separation. Physical barriers. Alternative techniques,2. Preventing the formation of explosive atmosphere,

Unit 4: Explosion Protection:

3. Explosion protection systems-a. Protection techniques-i.Containment, ii.Isolation, iii.Suppression, iv.Venting, b.Ventilation for explosion protection system, c. Explosion protection using inert gases, 4. Flame arrestors and quenching distance

- Unit 5: Fire Dynamics:** 1. Specific heat capacity-a. ΔH_c Air, ΔH_c O₂, 2. Radiation, 3. Flame spread-a. Solid surface, b. Liquid surfaces, c. O₂ enriched atmosphere, 4. Phases of fire development-a. Smouldering combustion, b. Spontaneous ignition, c. Flashover, d. Backdraught, 5. Compartment fires and unconfined fires.-a. Enclosures, b. Phases of fire development and growth period, c. Flashover and fully developed fire, 6. Human behavior in fire-a. Movement speeds and flow rates, b. Motivation to evacuate, 7. Causes of delay before evacuation.

References:

1. An introduction to fire dynamics – Dougal Drysdale
2. Enclosed Fire Dynamics – Bjorn karlsson, Jammes G Quintiere.



ज्ञानं महाकौशलम्

Mahakaushal University, Jabalpur (M.P.)

Fire Safety Design (BBFS- 302)

Unit 1: Sprinkler Design: 1. Introduction to Standards used in India and Abroad-I. TAC, II. IS III. NFPA 13, IV. BS EN 12845: 2004, 2. Types of sprinkler systems, Types by operation, 1. Wet

2. Dry, 3. Pre – action, 4. Deluge, Types of Layout-I. Centre Fed, I. End Fed, III. Grid, IV. Loop
3. Design and Layout-I. Components of Sprinklers system, II.Types of Sprinkler Head, III. Deflector Plates, IV. Effective Ranges of a Sprinkler and the Whole System,4. Hydraulic Calculations-
I. Hydraulic Calculations, II. K – Factor, 5. Pump Capacity & Water Supply & Storage

Unit 2: Detection & Warning Systems, Emergency lighting: 1. Detection and warning systems-a. Intro to types of systems, b. Automatic fire detection and principles of operation, c. Smoke, Radiation and Heat Detectors, Line Detectors, Beam Detectors., d. Detector Positioning, e. Control Panel & its Functions,2. Emergency lighting-a. Minimum Illuminance level, b. Defined escape routes/ undefined routes, c. Identification of escape routes and signs, d. Emergency lighting design, e. Sighting of essential escape lighting and additional escape lighting

Unit 3: Smoke Control Systems (Ventilation and Pressurization): 1. Introduction, 2. Essential features of smoke ventilation system, 3. Forces responsible for smoke movement., 4. Effect of wind, stack effect, 5. Natural, mechanical and tactical ventilation, 6. Impulse and extraction fan
7. Basics of pressurization, 8. Where pressurization is used

Unit 4: Gaseous System: 1. CO2 Flooding systems and designing, 2. FM 200.

Unit 5: DCP System: DCP systems and design.

References :

1. Approved document A – U.K.
2. Approved Document B – U.K.
3. British Standard 9999
4. Tariff Advisory Committee
5. NFPA fire design engineering



ज्ञानं महाकौशलम्

Mahakaushal University, Jabalpur (M.P.)

Salvage and Fire Accident Investigation (BBFS- 303)

Unit 1: Concepts of Salvage at Planning stage, Salvage Operation and difficulties encountered. Various items of equipment necessary in salvage operation.

Unit 2: Evaluation of fire situation- Fire Loss Calculation, Flame Temp. Measurement, Calculation for heat release rate, Salvage operation in different types of occupancies such as Hotel, Hospitals, Departmental Stores and Basement god owns etc.

Unit 3: Follow up action and Investigation of Fire Situation such as Structural Fire, Wild Fire and Automobile Fire etc.

Unit 4: Case Studies of Salvage operations in different types of occupancy.

Unit 5: Elementary of Fire Investigation-1. Legal implications of fire investigation, 2. What is accident investigation and its importance, 3. Accident investigation methodology, 4. Management of incident and collection of information--a. Role of investigator. Evidence at the scene, c. Witness statements and misleading information. Locating seats of fire, e. Silent witness. Documenting the scene – investigation report, g. protecting the crime scene-i. During fire fighting, ii. During investigation, h. Sequence of documents, 5. Basic steps for accident investigation

References:

1. Manual of Firemanship, Part 6-A by H.M.S.O.
2. Report and Accounts by Fire Salvage Association of Liverpool Limited.
3. The Principles and Practice of Fire Salvage Operation by Fire Salvage association.
4. Loss prevention in Process of Industries, Vol. 1, 2 & 3, Frank P. Lees.
5. Power Plant Engineering – Dr. Mahesh Verma



ज्ञानं महाकौशलम्

Mahakaushal University, Jabalpur (M.P.)

Disaster Management (BBFS- 304)

Unit 1: Types & consequence of major accident hazards, Role of management, Local authorities and public, Disaster Management Cycle Prevention, Mitigation, Preparedness, Disaster impact, Response, Restoration, Reconstruction, Onsite & offsite emergency planning; Emergency preparedness, rehearsal & exercises.

Unit 2: Role of Insurance in Disaster Management, Role of International co-operation (i.e. NGO & UN Agencies), affected factors on environment due to disaster. Need for National Capacity Building and Disaster Knowledge Network.

Unit 3: The Disaster Management Act:: Need for technological input in disaster mitigation, community based disaster preparedness program; Preparation of Disaster Management; Plan Early Warning System; Role of Information Technology (IT)

Unit 4: Natural Disaster like Earthquake, Mine fire, flood etc, Man-Made Disaster Industrial Disaster due to toxic gas release, Fire or Explosion; Case Study.

Unit 5: Accident related Disasters (Forest fires, Air, road, & Rail Accidents, Rural & Urban Fires, Oil Spills, Major building collapse etc. Community based Disaster preparedness program.

References: -

1. Disaster Management Act 2005
2. Industrial Security Management S.C. Dey
3. Encyclopedia of occupational Health & Safety (OSHA) IV edition.
4. Safe Handling of Hazardous Chemicals by Rohatgi.
5. Industrial Fire Hazards Hand Book (NFPA)
6. Major Hazard Control I.L.O. Geneva.
7. Chemical process safety Daniel. A. Crawl, Joseph F Louver.
8. Madhya Pradesh Control of Industrial Major Accident Hazards rules 1999.



ज्ञानं महाकौशलम्

Mahakaushal University, Jabalpur (M.P.)

Combustion Products & Its effects on Life Safety (BBFS- 305)

Unit 1: Combustion Fundamentals: Pyrolysis and combustion, Combustion products generation from fires and industries, Products of combustion and its individual effects and toxic properties, Monitoring equipments

Unit 2: Effects of Combustion products on environment and human health: Effects on environment, Effects on Humans, Effects from inhalation and indirect consumption

Unit 3: Prevention measures and suppression of toxic smoke generation: Prevention of toxic effects, Carbon Dioxide, Carbon Monoxide, Sulphur oxides, Nitrogen oxides, Lead

Unit 4: Physiological effects of combustion products and its prevention: Effects on fire fighters and victims of fire, Effects of Irritant and non-irritant smoke on fire fighters, Effects of Asphyxiation from combustion products.

Unit-5: Combustion Products: Understandings the hazards to human of Smoke, Carbon monoxide, hydrogen cyanide, hydrogen sulphide & carbon di oxide, toxicity of fire products Evaluation of smoke Toxicity & various models.

References:

1. Combustion by products and Their Health Effects: Summary of the 10th International Congress
2. Toxic Air, The case of cleaning up coal fired power plants, American Lung Association
3. Environmental effects of Toxic materials from Oil and Gas Combustion by Joao Vicente de Assuncao.
4. Toxicity of Plastics and Rubber in Fire, by P J Fardell
5. Physiological effects of combustion products, hazards of combustion products, by David Purser.



ज्ञानं महाकौशलम्

Mahakaushal University, Jabalpur (M.P.)

Industrial Hygiene & Occupational Health (BBFS-306)

Unit 1: Basic concepts of Industrial Hygiene, Environmental factors of stress: Chemical Hazards, Physical Ergonomically Biological Hazards, Threshold limit values (TLV) Short term exposure limit (STEL), Maximum Tolerable exposure Limit (MTEL), LC-50, LD-50, MSDS of Hazardous chemicals.

Unit 2: Recognition of hazards: Industrial toxicology, gases, vapors, solvent, dust, fibers, particulates, Industrial noise, Ionizing & non-Ionizing radiation thermal, Ergonomics.

Unit 3: Evaluation of hazard: General principals, Air sampling, Analysis, methods of air sampling various equipments for sampling, direct reading instruments for gases, vapors and particulates, Asbestos fibers, sampling & analysis.

Unit 4: Control of hazards: Methods of control local exhaust ventilation, dilution ventilation of Industrial work places, respiratory protection, ventilation norms requirements & measurements,.

Unit 5: Occupational health: Occupational diseases of skin, respiratory system, diseases from metals, pesticides, solvents & gases occupational cancer, Biological Monitoring.

References: -

1. Fundamentals of Industrial Hygiene by Barbara A. Plog & Patricia J. Quinlan.
2. Safety at work by John Ridby & John Channing.
3. Occupational Health & Safety in manufacturing Industries M K Potty.
4. Diseases of occupation D. Hunter.
5. Code of Practice for Hazardous goods by NFPA.