



बिलासपुर विश्वविद्यालय, बिलासपुर (छत्तीसगढ़)

SYLLABUS (NEW COURSE)

P.G. DIPLOMA IN COMPUTER APPLICATION

YEAR WISE PLAN  
PGDCA

S.N.	Subject Name	End Semester Examination Maximum Marks	End Semester Examination Minimum Passing Marks
1.	Fundamentals of Computer and Information Technology	100	40
2.	PC- Packages and Computerized Accounting System	100	40
3.	Data Communication and Computer Network	100	40
4.	Programming using 'C' & C++	100	40
5.	Relational Database Management System (Oracle)	100	40
6.	System Analysis & Design	100	40
7.	PC Package and Tally ERP Lab	50	17
8.	C,C++ and Oracle Lab	50	17
9.	Project	100	40



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### P.G. DIPLOMA IN COMPUTER APPLICATION

#### PAPER-I

#### FUNDAMENTALS OF COMPUTER & INFORMATION TECHNOLOGY

##### UNIT- I

Introduction to Computer and Information Technology: Brief history of development of computer & generations of computer, Computer system characteristics. Capabilities and limitations block diagram of computer. Types of computer-Analog, Hybrid, digital, micro, mini, mainframe, super computer. Personal computer, types of PCs desktop, laptop, notebook, palmtop etc. Number system Data representation in computers, Number system of computers binary, octal, hexadecimal, representation & their conversion, Coding system ASCII, BCD, EDCDIC etc.

##### UNIT- II

INPUT/OUTPUT devices: keyboard, mouse, monitor, trackball, joystick, digitizing table, scanners, digital cameras, MICR, OCR, OMR, Bar-code reader, Voice recognition, light pen, touch screen, devices, printer, plotter.

##### UNIT- III

Storage device: Data storage and retrieval methods-sequential, direct and index sequential- various storage devices-magnetic tape, magnetic disks, cartridge tape, data drives hard disk drives, floppy disks, optical disks-CD, VCD, CDR, CDRW, DVD.

##### UNIT- IV

Computer software: types of software, system software, application software, operating system, utility program, assemblers, compilers and interpreter. Operating system functions, Types batch, single user, multi user, multiprogramming, multiprocessing, Programming languages, machine, assembly, high level, 4GL, their merits and demerits. Computer virus –types of virus, virus detection & prevention virus on network.

##### UNIT- V

Data Communication & networks: analog and digital signals, modulations, amplitude modular (am), frequency modulation (fm), phase modulation (pm), communication process, direction of transmission flow, simplex, half duplex, full duplex. Types of network LAN, WAN, MAN etc, Topologies of LAN ring, bus star, mesh and tree topologies, communication protocols TCP/IP protocol suit. Communication channels media twisted, coaxial fiber optic, serial and parallel communication, Network operating system (NOS), bridges, hub, routers, repeater and gateways. Modem working and characteristics. Types of connections- dialup leased lines, ISDN, broadband.

#### Text & Reference Books:

01. Computer fundamentals, P.K. Sinha, BPB
02. Computer today by S.K. Basandra Galgotia Publications.
03. Fundamentals of information by Axexos Leon & Mathews Leon, Vikas Publishing House, New Delhi



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### P.G. DIPLOMA IN COMPUTER APPLICATION

#### PAPER-II

#### PC PACKAGES & COMPUTERIZED ACCOUNTING SYSTEM

##### UNIT- I

Fundamental of DOS & Windows: Fundamental of DOS booting process, internal and external commands, creating and executing batch files and directories creating text files. Introduction to windows features, various versions of windows, origin of windows parts of windows screen types and anatomy of windows using.

##### UNIT- II

Introduction to word processing (MS-word): Advantages of word processing, editing a file using paragraphs, bullets, indentation, ect. Formatting features, printing the documents, it includes paper-size, margins, header and footer, page no., using macros. Advance word processing, header and footers. Finding text, mail merge and other application, mathematical calculations, table handing.

##### UNIT- III

Introduction to spread sheet (MS-Excel): Definition and advantages of electronic worksheet, working of spread sheet, range and related operations. Setting saving and retrieving work sheet file, inserting deleting coping & moving of data cells, inserting and deleting rows & columns, protecting cell printing a worksheet, erasing a worksheet, graphs, creation, types of graphs creating a chart sheet 3D column charts, moving and changing the size of chart, printing the chart.

##### UNIT- IV

Introduction to Powerpoint (MS- Powerpoint): Creating a presentation, inserting/deleting slides, different slide views, editing slides,. Slide transition & editing special effects inserting sound, picture, chart, organization chart.

##### UNIT- V

Accounting software Tally ERP 9: Basic principles of double entry accounting system, creating new company security controls, groups, ledger, voucher type, modifying, new company, voucher entry, generating profit & loss account, trial balance and balance sheet, backup & restore.

##### Text & Reference Books:

01. Comdex Computer Course Kit (Windows 7 with office 2010), Gupta vikas, Dreamtech Publication.
02. Mastering MS Office 2000, Professional Edition by Courter, BPB Publication.
03. MS Office 2000 Training Guide by Maria, BPB Publication.
04. PC Software, Ravi Taxalli, BPB
05. Computer Fundamental by P.K. Sinha
06. Financial Accounting with Tally 9.001 edition by Vikas Gupta.
07. Mastering Tally ... ERP 9 By A.K. Nandhani.



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**PAPER-III**

**DATA COMMUNICATION & COMPUTER NETWORK**

**UNIT- I**

Introduction to Data Communication– Network models, protocols and architecture, standards organizations, line configuration, topology, transmission mode, classification of networks, OSI reference model, TCP/IP model.

**UNIT- II**

Analog and digital signals, Data encoding, parallel and serial transmission, modems, transmission media: guided media, unguided media, transmission impairment, performance, Synchronous and asynchronous transmission.

**UNIT- III**

Multiplexing, LLC, error detection and correction, flow control, HDLC, LANs- applications, architecture, Ethernet, 802.3 LANs, token ring, FDDI, IEEE 802.6, circuit switching, packet switching, message switching, connection oriented and connectionless services.

**UNIT- IV**

Principles of internetworking– connection– oriented, connectionless, Routing concepts, routing algorithms– distance-vector routing, link state routing, shortest path routing. Congestion control, QOS, internetworking, network devices.

**UNIT- V**

Network security requirements and attacks, public key and private key encryption and digital signatures, digital certificate, firewalls, IDS (Intrusion Detection System)

**Text & Reference Books:**

01. Computer networks– A.S. Tanenbaum. PHI
02. Data communication and networking – Behrouz A. Forouzan. TMH



**PAPER-IV**  
**SYSTEM ANALYSIS AND DESIGN**

**UNIT- I**

The system concept: characteristics, elements and types of a system, the system development life cycle, considerations, for candidate systems prototyping. The role of system analyst.

**UNIT- II**

System planning and initial investigation: Information Gathering, information gathering tools. Structured analysis, the tools of structured analysis (DFD, Data Dictionary, Decision tree and Pseudo codes Decision Tables), PROS and CONS of each tool, system performance definition description of outputs, feasibility study. Cost/ Benefit analysis, Data analysis, Cost/ Benefit analysis, the system proposal.

**UNIT- III**

Stages of system design: Design methodologies, development activities, input design, output design forms design, types of forms, basics of form design layout considerations and forms control.

**UNIT- IV**

File structure: File organization, objectives of database, data structure, system testing and quality assurance, why system testing, what do we test for, the test plan quality assurance, trends in testing, role of data processing auditor, training and documentation.

**UNIT- V**

Implementing and software maintenance: conversion combating resistance to change, post implementation review, software maintenance, hardware/software selection and the computer contract, suppliers, procedure for hardware/software selection, financial considerations in selection, the computer contract system security disaster recovery planning.

**Text & Reference Books:**

01. System analysis and design, Elias M. Awad, Galgotia Publication (P) Ltd.
02. System analysis and design, International Ed. Perry Edwards, McGraw Hill Pub.



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### P.G. DIPLOMA IN COMPUTER APPLICATION

#### PAPER-V

#### PROGRAMMING IN C & C++

##### UNIT- I

Introduction to “C” Language: Fundamentals, simple I/O statements, reading and writing, data types constants, variable, operators & expressions, library function, control statements, if-else, while, do-while, goto, for statements switch, break, looping statements, functions recursion, arrays, multidimensional arrays, strings & pointers.

##### UNIT- II

Programming in C++, functions, class, object, constructor and destructor: Call by reference, call by value, return by reference, inline function, constant argument, function overloading, static member function, static data member,. Classes: implementing class, classes and members, accessing class members, implementing class methods, array of object, friend function. Constructor & destructors: parameterized constructor, multiple constructor, constructor with default argument, copy constructor, destructor.

##### UNIT- III

Operator overloading & type casting: Operator overloading, unary operator overloading, binary operator overloading, manipulates string using operator overloading, type conversions: basic to class, class to basic, class to class.

##### UNIT- IV

Inheritance, virtual function: single inheritance, multilevel inheritance, multiple inheritance, hybrid inheritance, hierarchical inheritance, virtual base class, abstract class.

##### UNIT-V

Pointer & File: Pointer to object, this pointer, virtual function and pure virtual function. File: opening and close file, detecting end of the file

##### Text Books:

01. Let us C by Yaswant Kanetkar BPB
02. Object oriented Programming with C++, E.Blagurusamy, Tata mc Graw-Hill
03. C++ Complete reference, Herbert Schildt, TMH.
04. ANSI C programming, E.Blagurusamy, TMH



**PAPER-VI**

**RELATIONAL DATABASE MANAGEMENT SYSTEM (ORACLE)**

**UNIT- I**

Overview of Database Management: Data, information, data independence, database administration roles, DBMS architecture, different kinds of DBMS users importance of data dictionary, contents of data dictionary, types of database languages. Data models: network, hierarchical, relational. Introduction to distributed database, client/server databases, object-relational databases, introduction to ODBC concept

**UNIT- II**

Relational Model: Entity relationship model as a tool for conceptual design-entities attributes and relationships. ER diagrams; concept of keys: candidate key, primary key, alternate key, foreign key; strong and weak entities, case studies of ER modeling generalization; specialization and aggregation, Converting an ER model into relational schema. Extended ER features, introduction to UML, Representation in UML diagram.

**UNIT- III**

Structured Query Language (SQL): Relational Algebra: select, project, cross product different types of joins (inner join, outer joins, self join); set operations, tuple relational calculus, domain relational calculus, simple and complex queries using relational algebra, stand alone and embedded query languages, introduction to SQL constructs (SELECT...FROM, WHERE... GROUP BY... HAVING ... ORDERBY...), INSERT, DELETE, UPDATE, VIEW definition and use, temporary tables, nested queries, and correlated nested queries, integrity constraints: Not null, unique, check, primary key, foreign key, reference, triggers.

**UNIT- IV**

Relational database design: Normalization concept in logical model; pitfalls in database design, update anomalies: functional dependencies join dependencies, Normal forms (1NF, 2NF, 3NF). Boyce code normal form, decomposition, multi-valued dependencies, 4NF, 5NF. Issues in physical design; concepts of indexes, file organization for relational tables, de-normalization, clustering of tables, clustering indexes.

**UNIT- V**

Introduction to Query processing and protection the database: parsing, translation, optimization, evaluation and overview of query processing. Protecting the database integrity, security and recovery, Domain constraints, referential integrity, assertion, triggers, security & authorization in SQL

**Text & Reference Books:**

01. Database system concept, H. Korth and A. Silberschatz, TMH
02. Data Base Management System, C.J. Date, Narosha Publication.
03. An Introduction to database systems – Bipin Desai, Galgotia Publication.
04. SQL, PL/SQL Evan Bayross (2<sup>nd</sup> edition) BPB publications.



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### P.G. DIPLOMA IN COMPUTER APPLICATION

#### PC Package & Tally ERP Lab

**Note:** Practical should be as per syllabus of theoretical papers.

#### C, C++ & Oracle Lab

**Note:** Practical should be as per syllabus of theoretical papers.

### PROJECT

**Note:**

01. It is compulsory, that students would have group of maximum of two students and project should be done under Government sectors/ Public Sector/ Pvt. Limited S/W Company/ Software Technology park of India/ ISO 9001 certified company etc.
02. The students should not make any project under local or private institutions.
03. The students should make project themselves and project will not be copy of other project.

#### Steps for Live Project

01. Getting customer's requirements
02. Designs, database and business logics.
03. Developing software application project.
04. Testing and implementing the project.
05. Troubleshooting the project application after implementation.

The break-up of marks for Practical will be as under :			
Sr. No.	Argument	Maximum Marks	Minimum Passing Marks
1.	Lab Record	10	
2.	Viva-voce	20	
3.	Program Development & Execution	20	
Total Marks		50	17

The break-up of marks for Practical will be as under :			
Sr. No.	Argument	Maximum Marks	Minimum Passing Marks
1.	Project Report	25	
2.	Viva-voce/ Presentation	25	
3.	Project Execution	50	
Total Marks		100	40



# बिलासपुर विश्वविद्यालय, बिलासपुर (छ.ग.)

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फोन : 07752-220031, फैक्स 07752-260294, ई-मेल : bilaspuruniversity.2012@gmail.com,  
वेबसाईट : www.bilaspuruniversity.ac.in

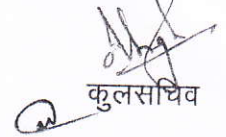
क्र. 1186 / अका. / 2014

बिलासपुर दिनांक 11/9/14

## अधिसूचना

बिलासपुर विश्वविद्यालय से सम्बद्ध समस्त महाविद्यालय को सूचित किया जाता है कि केन्द्रीय अध्ययन मण्डल द्वारा अनुमोदित पर्यावरण अध्ययन के संशोधित पाठ्यक्रम "पर्यावरण अध्ययन व मानवाधिकार" स्नातक स्तर पर शिक्षा सत्र 2014-15 से प्रभावशील होगा। (अनुमोदित पाठ्यक्रम संलग्न)

आदेशानुसार,

  
कुलसचिव

पृ. क्रमांक 1187 / अका. / 2014

बिलासपुर, दिनांक 11/9/14

प्रतिलिपि:-

1. कुलपति के निज सहायक को माननीय कुलपति महोदय के सूचनार्थ प्रेषित।
2. परीक्षा नियंत्रक / उप-कुलसचिव (परीक्षा/गोपनीय) बिलासपुर विश्वविद्यालय, बिलासपुर को सूचनार्थ प्रेषित।
5. प्राचार्य, समस्त सम्बद्ध महाविद्यालय, को इस आशय के साथ प्रेषित की महाविद्यालय में केन्द्रीय अध्ययन मण्डल द्वारा अनुमोदित "पर्यावरण अध्ययन व मानवाधिकार" विषय का अंगीकृत पाठ्यक्रम अध्ययन-अध्यापन कराना सुनिश्चित करें।
6. संपादक, दैनिक ..... को इस अनुरोध के साथ प्रेषित की कृपया उपरोक्त अधिसूचना को अपने लोकप्रिय दैनिक समाचार पत्र में छात्रहीन में प्रकाशित करने का कष्ट करें।

  
कुलसचिव

## SYLLABUS FOR ENVIRONMENTAL STUDIES AND HUMAN RIGHTS FOR UNDER GRADUATE

'इन्वायरमेंटल साइंसेस' के पाठ्यक्रम को स्नातक स्तर भाग-एक की कक्षाओं में विश्वविद्यालय अनुदान आयोग के निर्देशानुसार अनिवार्य रूप से शिक्षा सत्र 2003-2004 (परीक्षा 2004) से प्रभावशील किया गया है। स्वशासी महाविद्यालयों द्वारा भी अनिवार्य रूप से अंगीकृत किया जाएगा।

भाग 1, 2 एवं 3 में से किसी भी वर्ष में पर्यावरण प्रश्न -पत्र उत्तीर्ण करना अनिवार्य है। तभी उपाधि प्रदाय योग्य होगी।

पाठ्यक्रम 100 अंकों का होगा, जिसमें से 75 अंक सैद्धांतिक प्रश्नों पर होंगे एवं 25 अंक क्षेत्रीय कार्य (Field Work) पर्यावरण पर होंगे।

सैद्धांतिक प्रश्नों पर अंक -75 (सभी प्रश्न इकाई आधार पर रहेंगे जिसमें आंतरिक विकल्प रहेगा)

(अ) लघु प्रश्नोंत्तर - 25 अंक

(ब) निबंधात्मक - 50 अंक

**Field Work - 25 अंकों का मूल्यांकन आंतरिक मूल्यांकन पद्धति से कर विश्वविद्यालय को प्रेषित किया जावेगा। अभिलेखों की प्रायोगिक उत्तर पुस्तिकाओं के समान संबंधित महाविद्यालयों द्वारा सुरक्षित रखेंगे।**

उपरोक्त पाठ्यक्रम से संबंधित परीक्षा का आयोजन वार्षिक परीक्षा के साथ किया जाएगा।

पर्यावरण विज्ञान विषय अनिवार्य विषय है, जिसमें अनुत्तीर्ण होने पर स्नातक स्तर भाग-एक के छात्र/छात्राओं को एक अन्य विषय के साथ पूरक की पात्रता होगी। पर्यावरण विज्ञान के सैद्धांतिक एवं फील्ड वर्क में संयुक्त रूप से 33% (तैतीस प्रतिशत) अंक उत्तीर्ण होने के लिए अनिवार्य होंगे।

स्नातक स्तर भाग-एक के समस्त नियमित/भूतपूर्व/अमहाविद्यालयीन छात्र/छात्राओं को अपना फील्ड वर्क सैद्धांतिक परीक्षा की समाप्ति के पश्चात् 10 (दस) दिनों के भीतर संबंधित महाविद्यालय/परीक्षा केन्द्र में जमा करेंगे एवं महाविद्यालय के प्राचार्य/केन्द्र अधीक्षक, परीक्षकों की नियुक्ति के लिए अधिकृत रहेंगे तथा फील्ड वर्क जमा होने के सात दिनों के भीतर प्राप्त अंक विश्वविद्यालय को भेजेंगे।

कृपया - पर्यावरण विज्ञान व मानवाधिकार विषय  
का पाठ्यक्रम अनुमोदनार्थ प्रस्तुत है।

Dr. R. S. J.  
11/11/13

1. Prof. A. K. Gupta - 11/11/13  
2. Prof. C. L. Patel  
3. Prof. R. Prasad



Part-I

SYLLABUS FOR ENVIRONMENTAL STUDIES AND HUMAN RIGHTS FOR UNDER GRADUATE

(paper code - 0828)

M.M. 75

**UNIT -I THE MULTI DISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES:**

**Definition, Scope and Importance**

**Natural Resources:**

**Renewable and Nonrenewable Resources:**

Natural resources and associated problems

- (a) Forest resources: Use and over-exploitation, deforestation, Timber extraction, mining, dams and their effects on forests and tribal people and relevant forest Act.
- (b) Water resources: Use and over-utilization of surface and ground water, floods drought, conflicts over water, dams benefits and problems and relevant Act.
- (c) Mineral resources: Use and exploitation, environmental effects of extracting and using mineral resources.
- (d) Food resources: World food problems, changes caused by agriculture and overgrazing, effects of modern agriculture, fertilizer-pesticide problems, water logging, salinity.
- (e) Energy resources: Growing energy needs, renewable and non-renewable energy sources, use of alternate energy sources.
- (f) Land resources: Land as a resource, land degradation, man induced landslides soil erosion and desertification.

**UNIT-II ECOSYSTEM**

**(12 Lecturer)**

**(a) Concept, Structure and Function of an ecosystem**

- Producers, consumers and decomposers.
- Energy flow in the ecosystem
- Ecological succession.
- Food chains, food webs and ecological pyramids.
- Introduction, Types, Characteristic Features, Structure and Function of Forest, Grass, Desert and Aquatic Ecosystem.

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## (b) Biodiversity and its Conservation

- Introduction - Definition: genetic, species and ecosystem diversity.
- Bio-geographical classification of India.
- Value of biodiversity: consumptive use, productive use, social, ethics, aesthetic and option values.
- Biodiversity at global, National and local levels.
- India as mega-diversity nation.
- Hot spots of biodiversity
- Threats to biodiversity: habitat loss, poaching of wildlife, man-wild life conflict.
- Endangered and endemic species of India.
- Conservation of biodiversity: In situ and Ex-situ conservation of biodiversity.

## UNIT-III ENVIRONMENTAL POLLUTION

(12 Lecturer)

### Definition

#### (a) Causes, effect and control measures of -

- Air water, soil, marine, noise, nuclear pollution and Human population.
- Solid waste management: Causes, effects and control measures of urban and industrial wastes.
- Role of an individual in prevention of pollution.
- Disaster Management: floods, earthquake, cyclone and landslides.

#### (b) Environmental Management

(12 Lecturer)

- From Unsustainable to sustainable development.
- Urban problems related to energy.
- Water conservation, rain water harvesting, watershed management.
- Resettlement and rehabilitation of people, its problems and concerns.
- Environmental ethics: Issues and possible solutions.
- Climate change, global warming, acid rain, ozone layer depletion, nuclear accidents and holocaust.

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Wasteland reclamation.

- Environment Protection Act: Issues involved in - enforcement of environmental legislation.
- Role of Information Technology in Environment and Human Health.

#### UNIT-IV

General background and historical perspective- Historical development and concept of Human Rights, Meaning and definition of Human Rights, Kind and Classification of Human Rights.

Protection of Human Rights under the UNO Charter, Protection of Human Rights under the Universal Declaration of Human Rights, 1948

Convention on the Elimination of all Forms of Discrimination against women

Convention on the Rights of the Child, 1989

#### UNIT-V

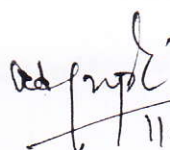
Impact of Human Rights norms in India, Human Rights under the Constitution of India, Fundamental Rights under the Constitution of India, Directive Principles of State Policy under the Constitution of India, Enforcement of Human Rights in India


Protection of Human Rights under the Human Rights Act, 1993 - National Human Rights Commission, State Human Rights Commission and Human Rights court in India.

Fundamental Duties under the Constitution of India

#### Reference/Books Recommended:

1. SK Kapoor- Human rights under International Law and Indian Law
2. HO Agrawal- International Law and Human Rights
3. एस. के. कपूर – मानव अधिकार
4. जे. एन. पान्डेय – भारत का संविधान
5. एम. डी. चतुर्वेदी – भारत का संविधान
6. J. N. Pandey - Constitutional Law of India
7. Agarwal K.C. 2001 Environmental Biology, Nidi Pub. Ltd. Bikaner
8. Bharucha Erach, the Biodiversity of India, Mapin Pub. Pvt. Ltd. Ahmedabad 380013, India, Email: mapin@icenet.net(R)

  
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