हेमचंद यादव विश्वविद्यालय, दुर्ग (छ.ग.)

(पूर्व नाम- दुर्ग विश्वविद्यालय, दुर्ग)

रायपुर नाका, दुर्ग (छ.ग.)-491001

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क्र. 4034 /अका./2025 दुर्ग, दिनांक : 15.07.25

प्राचार्य,
समस्त संबद्ध महाविद्यालय,
हेमचंद यादव विश्वविद्यालय,
दुर्ग (छ.ग.)

विषयः– स्नातक स्तर के नवीन पाठ्यक्रम के भाग–तीन को सत्र 2025–26 से विश्वविद्यालय में लागू करने विषयक।

संदर्भः– अपर संचालक, उच्च शिक्षा संचालनालय, नवा रायपुर, अटल नगर का पत्र क्र. 3985/237/आउशि/2023, दिनांक 13.06.2023।

———00———

विषयांतर्गत लेख है कि संदर्भित पत्र के माध्यम से प्राप्त स्नातक स्तर भाग– तीन के निम्नलिखित कक्षा/विषयों के परिवर्तित/संशोधित पाठ्यक्रम शिक्षा सत्र 2025–26 से लागू किये जाते हैंः–

1.	बी.ए.	–	आधार पाठ्यक्रम–हिन्दी भाषा, अंग्रेजी भाषा, हिन्दी साहित्य, अंग्रेजी साहित्य, राजनीतिशास्त्र, अर्थशास्त्र, नृत्य, दर्शनशास्त्र, समाजशास्त्र, इतिहास, संस्कृत, मानवविज्ञान, भूगोल, मनोविज्ञान, कम्प्यूटर।
2.	बी.एस–सी.	–	आधार पाठ्यक्रम–हिन्दी भाषा, अंग्रेजी भाषा, जीव विज्ञान, मानवविज्ञान, गणित, बायोटेक्नोलॉजी, कम्प्यूटर साईंस, भौतिकी, प्राणीशास्त्र, भूविज्ञान, आई.टी., सूक्ष्मजीवविज्ञान, वनस्पतिशास्त्र, इलेक्ट्रॉनिक्स, रसायन शास्त्र, भूगोल।
3.	बी.एस–सी. (गृह विज्ञान)	–	आधार पाठ्यक्रम – हिन्दी भाषा, अंग्रेजी भाषा एवं गृह विज्ञान।
4.	बी.कॉम.	–	आधार पाठ्यक्रम – हिन्दी भाषा, अंग्रेजी भाषा एवं वाणिज्य।
5.	विधि	–	एल.एल.बी.
6.	प्रबंध	–	बी.बी.ए.
7.	कम्प्यूटर	–	बी.सी.ए.
8.	शिक्षा	–	बी.एड.
9.	लाईब्रेरी साईंस	–	बी.लिब.

उपरोक्त विषयों को शिक्षा सत्र 2025–26 से संशोधित रूप में स्नातक स्तर भाग–तीन के लिए लागू किया जाता है।

अतः आपसे अनुरोध है कि पाठ्यक्रम परिवर्तन/संशोधन से महाविद्यालय के शिक्षकों एवं छात्र–छात्राओं को अवगत कराने का कष्ट करेंगे।

टीप :– परिवर्तित/संशोधित पाठ्यक्रम विश्वविद्यालय की वेबसाईट पर उपलब्ध है।

संलग्न : उपरोक्तानुसार।

कुलसचिव

क्र. 4035 /अका./2025 दुर्ग, दिनांक 15/07/25

प्रतिलिपिः–

1. अपर संचालक, उच्च शिक्षा संचालनालय, नवा रायपुर, अटल नगर का पत्र क्र. 3985/237/आउशि/2023, दिनांक 13.06.2023 के परिपेक्ष्य में सूचनार्थ।
2. कुलपति के निज सहायक एवं कुलसचिव के निज सहायक, हेमचंद यादव विश्वविद्यालय, दुर्ग।
3. उपकुलसचिव, परीक्षा विभाग एवं उपकुलसचिव, गोपनीय विभाग हेमचंद यादव विश्वविद्यालय, दुर्ग।

उपकुलसचिव (अका.)

Learning Outcome Based Scheme and Syllabus of Examination

for

Bachelor of Computer Application (BCA)

Courses Effective from Academic Session 2022-23

1. **Title of the program:** The title of the programme shall be Bachelor of Computer Application (B.C.A.).
2. **Eligibility for admission:** Eligibility of admission in BCA will be as follow:
   i. Student must passed H.Sc. (Class 12th) in any stream/Three year diploma course in any branch of technical education or equivalent from recognized board.
   ii. Student must have minimum aggregate of 40% marks in H.Sc. examination (Relaxation in percentage will be as per rule of C.G. Govt.).
3. **Scheme of examination:** Each theory paper is divided into two components as follow, however there shall not be any Internal Assessment (IA) for practical subject.
   i. University Examination (UE): 75 Marks
   ii. Internal Assessment (IA): 25 Marks
4. **Internal Assessment (IA):** The structure of IA shall be as follow:
   i. **Internal test (15 Marks):** There shall be three internal tests of 15 marks each, the average of best two shall be considered as the marks of internal test.
   ii. **Other activity (10 Marks):** Presentation/Group discussion /Assignment/ MOOC course certification (List of MOOC course shall be provided to the students through notice board/college website by the HOD concern after mapping it from SWAYAM, Coursera or any other similar popular platforms at the beginning of each academic session) or any other similar activity.
5. **University Examination (UE)**: The pattern of examination shall be as follow:
   i. There shall be two sections of question paper: A and B
   ii. Section A (15 Marks) shall be compulsory and shall consists 15 short/objective questions each of one mark covering the entire syllabus.
   iii. Section B (60 Marks) shall consist questions from 5 unites as per the syllabus with internal choice (Student has to attempt only one question from each unit). Each unit shall be of 12 marks.

6. **Programme Learning Outcomes for Bachelor of Computer Application (BCA)**

On completion of this programme, the students are expected to:

PLO1: Apply knowledge of computing fundamentals, computing specialization, mathematics, and domain knowledge appropriate for the computing specialization to the abstraction and conceptualization of computing models from defined problems and requirements.

PLO2: Identify, formulate, research literature, and solve complex computing problems reaching substantiated conclusions using fundamental principles of mathematics, computing sciences, and relevant domain disciplines.

PLO3: Recognize the need, and have the ability, to engage in independent learning for continual development as a computing professional.

PLO4: Demonstrate knowledge and understanding of the computing and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

PLO5: Communicate effectively with the computing community, and with society at large, about complex computing activities by being able to comprehend and write effective reports, design documentation, make effective presentations, and give and understand clear instructions.

PLO6: Identify a timely opportunity and using innovation to pursue that opportunity to create value and wealth for the betterment of the individual and society at large.

PLO7: Develop software projects in various languages as per the demand of the market.

PLO8: Work on research based projects.

PLO9: Develop live software projects and will be capable of working in IT companies.

PLO10: Explore and gain new knowledge through MOOC courses.

PLO11: Ability to pursue higher studies of specialization and to take up technical employment.

PLO12: Ability to formulate, to model, to design solutions, procedure and to use software tools to solve real world problems and evaluate.

PLO13: Apply standard Software Engineering practices and strategies in real-time software project development.

PLO14: The ability to work independently on a substantial software project and as an effective team member.

PLO15: Ability to operate, manage, deploy and configure software operation of an organization.

Scheme of BCA

Year	Course Code	Subject Name	Theory/ Practical	Total Credit	Marks			
					UE	IA	Total	
					Max	Max	Max	Min
First	BCA-1T	Discrete Mathematics	Theory	6	75	25	100	33
	BCA-2T	Computer Fundamental and MS office	Theory	4	75	25	100	33
	BCA-3T	Programming with C and C++	Theory	4	75	25	100	33
	BCA-4T	Data Structure	Theory	6	75	25	100	33
	BCA-5T	Digital Electronics	Theory	6	75	25	100	33
	BCA-6T	Hindi	Theory	5	50	-	50	17
	BCA-7T	English	Theory	5	50	-	50	17
	BCA-1P	LAB 1: PC software	Practical	2	100	-	100	33
	BCA-2P	LAB 2: Programming with C and C++	Practical	2	100	-	100	33
Second	BCA-8T	Numerical Mathematics	Theory	6	75	25	100	33
	BCA-9T	Operating System	Theory	6	75	25	100	33
	BCA-10T	Relational Database Management System	Theory	4	75	25	100	33
	BCA-11T	Computer Networking and Cyber Technology	Theory	6	75	25	100	33
	BCA-12T	Web Technology	Theory	4	75	25	100	33
	BCA-13T	Hindi	Theory	5	50	-	50	17
	BCA-14T	English	Theory	5	50	-	50	17
	BCA-3P	LAB 3: Relational Database Management System	Practical	2	100	-	100	17
	BCA-4P	LAB 4: Web Technology	Practical	2	100	-	100	17
Third	BCA-15T	Python Programming	Theory	4	75	25	100	33
	BCA-16T	Java Programming	Theory	4	75	25	100	33
	BCA-17T	Software Engineering	Theory	6	75	25	100	33
	BCA-18T	Artificial Intelligence and Expert System	Theory	6	75	25	100	33
	BCA-19T	E-Commerce	Theory	6	75	25	100	33
	BCA-20T	Communication Skill	Theory	5	100	-	100	33

	BCA-5P	LAB 5: Java	Practical	2	100	-	100	33
	BCA-6P	LAB 6: Python	Practical	2	100	-	100	33
	BCA-7P	Project	Practical	5	100	-	100	33

Note:

1. Syllabus of Foundation Courses: Hindi and English shall be similar to B.Sc. Computer Science/IT program.
2. Students has to pass environment studies subject as per the rule of any other B.Sc. program.
3. There shall be four extra credits in all the years of under graduation for internship/apprenticeship/skill development program. The certificate of extra credits would be provided by the concern university and is not mandatory.

Abbreviations used:

UE: University Exam
IA: Internal Assessment

बी.ए./ बी.एस-सी./ बी.कॉम./ बी.एच.एस.सी. भाग- तीन

(आधार पाठ्यक्रम)

प्रथम प्रश्नपत्र

हिंदी भाषा

कोड....

पूर्णांक 75

क्रेडिट 05

पाठ्यक्रम का उद्देश्य:-

1. हिंदी साहित्य की मूल संवेदना से सामान्य रूप से परिचित कराना ।
2. भारत की सामाजिक, आर्थिक एवं पर्यावरण संबंधी समग्र राष्ट्रीय विकास की रणनीति के विषय में सामान्य जानकारी प्रदान करना।
3. हिंदी में अभिव्यक्ति की पद्धतियों से अवगत कराना एवं उनके संप्रेषण कौशल में वृद्धि करना।
4. कामकाजी भाषा का सम्यक ज्ञान प्रदान करना।

23/2/23

23.2.2023

23/2/23

इकाई 1 (क) भारत माता : सुमित्रानंदन पंत शहर से सोचता हूँ : विनोद कुमार शुक्ल (ख) कथन की शैलियाँ: 1. विवरणात्मक शैली 2. मूल्यांकनपरक शैली 3. व्याख्यात्मक शैली 4. विचारात्मक शैली	अंक 15 18 कालखंड
इकाई 2(क)सूखी डाली : उपेंद्रनाथ अश्क अपोलो का रथ : श्रीकांत वर्मा (ख) विभिन्न संरचनाएँ 1. विनम्रता सूचक संरचना 2. विधिसूचक संरचना 3. निषेधपरक संरचना 4. कालबोधक संरचना 5. स्थान बोधक संरचना 6. दिशाबोधक संरचना 7. कार्य-कारण संबंध संरचना 8. अनुक्रम संरचना	अंक 15 18 कालखंड
इकाई 3 (क) रहीम चाचा: शानी निमित्त : भीष्म साहनी (ख) कार्यालयीन पत्र 1. परिपत्र 2. आदेश 3. अधिसूचना 4. ज्ञापन 5. अनुस्मारक 6. पृष्ठांकन	अंक 15 18 कालखंड
इकाई 4(क) आज भी खरे हैं तालाब (आज भी खरे हैं तालाब काअध्याय) : अनुपम मिश्र एक गाँव में विश्व पर्यावरण वर्ग (धरती की पुकार का अध्याय) : सुंदरलाल बहुगुणा (ख) समसामयिक विषयों पर एक निबंध (शब्द सीमा 250)	अंक 15 18 कालखंड
इकाई 5 (क)संस्कृतिऔरराष्ट्रीयएकीकरण : योगेश अटल शक्तिमानता का अर्थशास्त्र :ओंकारशरणश्रीवास्तव	अंक 15 18 कालखंड

23/1/23 23.2.2023

(ख) घटनाओं, समारोहोंका प्रतिवेदन, विभिन्न प्रकार के निमंत्रण पत्र	

मूल्यांकन योजना:-

प्रत्येक इकाई से एक-एक प्रश्न पूछे जाएंगे। एक प्रश्न के 15 अंक होंगे। प्रत्येक प्रश्न में आंतरिक विकल्प होगा। प्रत्येक प्रश्न के दो भाग 'क' और 'ख' होंगे एवं अंक क्रमश:08 एवं 07 होंगे। प्रश्नपत्र का पूर्णांक75 निर्धारित है।प्रश्नपत्रकेपूर्णांककादसप्रतिशतअंकआंतरिकमूल्यांकनकेलिएनिर्धारितहै।

पाठ्यक्रम के संभावित परिणाम:-

1. हिंदी साहित्य से सामान्य परिचय हो सकेगा ।
2. हिंदी में अभिव्यक्ति की पद्धतियों से परिचय होगा एवं उनके संप्रेषण कौशल में वृद्धि हो सकेगी।
3. कामकाजी भाषा लेखन का कौशल विकसित हो सकेगा ।
4. भारतीय संस्कृति के समन्वयात्मक स्वभाव के प्रति विश्वास जागृत हो सकेगा।

23/2/23 23.2.2023 23/2/23

BA/B.Sc./B.Com/B.Sc. Home.Sc. (Part-III)
Foundation Course Paper-II English Language

Qualifying Marks:26

Max. Marks:75
Total credits: 05

Paper-II	Mark's	Period's	Credit
Unit-I English in Use: A Textbook for College Students (Semester III), Macmillan Publishers India Pvt Ltd	3x5=15	18	01
Unit -II Writing Skills Writing a Film Review Book Review Editorial Writing Story Wrtiting	1x10=10	18	01
Unit -III Reading Comprehension (a) Unseen Passage (MCQ -based) (b) Vocabulary (Text-based)	1x5=05 1x10=10	09	0.5
Unit -IV CV Writing: Chronological CV & Functional CV Precis Writing	1x10=10	09	01
Unit-V Grammar • Reported speech • Punctuation . • Simple, Compound & Complex Sentences • Clause Analysis: Co-ordinate Clauses & Subordinate Clauses • Translation from English to Hindi(5 sentences only)	1x25=25	27	1.5
Total	**75**	**90**	**05**
Recommended Books- 1. Essential English Grammar, 2nd Edition by Raymond Murphy, Cambridge Publication 2. English Grammar in use 5th edition by Raymond Murphy, Cambridge Publication. 3. Advanced English Grammar by Martin Hewings Cambridge University Press.			

11/07/2023
(P.C. Choudhury)

Part - I
SYLLABUS FOR ENVIRONMENTAL STUDIES AND HUMAN RIGHTS
(Paper code-0828)

MM. 75

इन्वारमेंटल साईंसेस 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 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 के संयुक्त रूप से 33ः (तैंतीस 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 अधिक्षक, परीक्षकों की नियुक्ति के लिए अधिकृत रहेंगे तथा फील्ड वर्क जमा होने के सात दिनों के भीतर प्राप्त अंक विश्वविद्यालय को भेजेंगे।

UNIT-I THE MULTI DISCIPLINARY NATURE OF ENVIRONMENTAL STUDIES

Definition, Scope and

Importance Natural Resources:

Renewable and Nonrenewable Resources

(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, dam' s 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.

(12 Lecture)

UNIT-II ECOSYSTEM

(a) Concept, Structure and Function of and ecosystem

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

(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.

(12 Lecture)

UNIT- III

(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.

(12 Lecture)

(b) Environmental Management

- 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.
- 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- Internation 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. Ltd. Ahmedabad 380013, India, Email: mapin@icenet.net(R)
9. Bruinner R.C. 1989, Hazardous Waste Incineration. McGraw Hill Inc.480p
10. Clark R.S. Marine pollution, Clanderson press Oxford (TB)
11. Cuningham, W.P.Cooper. T.H.Gorhani, E & Hepworth. M.T,200
12. Dr. A.K.- Environmental Chemistry. Wiley Eastern Ltd.
13. Down to Earth, Center for Science and Environment (R)
14. Gloick, H.P. 1993 Water in crisis. pacific institute for studies in Deve. Environment & Security. Stockholm Eng. Institute. Oxford University, Press. m 473p.
15. Hawkins R.E. Encyclopedia of Indian Natural History, Bombay Natural History Society, Mumbai (R)

16. Heywood, V.H. & Watson, T.T.1995 Global Biodiversity Assessment, Cambridge Univ. Press 1140p
17. Jadhav H. & Bhosale, V.H. 1995 Environmental Protection and Law. Himalaya pub. House, Delhi 284p
18. Mckinney M.L.& School R.M.1996, environmental Science systems & solutions, web enhanced edition, 639p
19. Mhadkar A.K. Matter Hazardous, Techno-Science publication(TB)
20. Miller T.G.Jr. Environment Science, Wadsworth publication co. (TB)
21. Odum E.P.1971, Fundamentals of Ecology, W.B. Saunders Co. USA,574p
22. Rao M.N. & Datta, A.K. 1987, Waste water treatment. Oxford & IBH pub.co.pvt. Ltd 345p
23. Sharma B.K. 2001, Environmental chemistry, Goel pub. House, Meerut
24. Survey of the Environment, The Hidu(M)
25. Townsend C. Harper J. And Michael Begon, Essentials of Ecology, Blackwell Science(TB)
26. Trivedi R.K.Handbook of Environment Laws, Rules, Guidlines, Compliances and Standards, Vol land II, Environment Media(R)
27. Trivedi R.K. and P.K. Goel, Introduction to air pollution, Techno-Science publication (TB)
28. Wanger K.D.1998, Environmental Management. W.B. Saunders Co. Philadelphia, USA 499

Part A: Introduction				
Program: **Degree Course**		Class: **B.C.A. III Year**	Year: **2022**	Session: **2022-2023**
1	Course Code	**BCA-5P**		
2	Course Title	**LAB 5: Java**		
3	Course Type	**Practical**		
4	Pre-requisite (if any)	Theoretical knowledge of Java and Python		
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Develop front end application using front end technologies. • Demonstrate the principles of object-oriented programming. • Create multi-threaded programs and event handling mechanisms • Express different Decision-Making statements and Functions.		
6	**Credit Value**	**Practical: 2**		
7	**Total Marks**	**Max. Marks: 100**	**Min Passing Marks : 33**	

Part B: Content of the Course	
Total Periods: 30	
Tentative Practical List	**Note:** This is tentative list; the teachers concern can add more program as per requirement. 1. Create a java program to implement stack and queue concept. 2. Write a java package to show dynamic polymorphism and interfaces. 3. Write a java program to show multithreaded producer and consumer application. 4. Create a customized exception and also make use of all the 5 exception keywords. 5. Convert the content of a given file into the uppercase content of the same file. 6. Develop an analog clock using applet. 6. Develop a scientific calculator using swings. 7. Create an editor like MS-word using swings. 8. Create a servlet that uses Cookies to store the number of times a user has visited your servlet. 9. Create a simple java bean having bound and constrained properties. 10. Write a java program to create an abstract class named shape that contains two integers and an empty method named print Area () Provide three classes named Rectangle. Triangle and Circle such that each one of the classes extends the class shape. Each one of the class contains only the method print Area () that print the area of the given shape. 11. Write a Java program that implements a multithreaded program that has three threads. First thread generates a random integer every 1 second and if the value is even, the second thread computes the square of the number and prints. If the value is odd the third thread will print the value of the cube of the number. 12. Write a java program which creates a list containing ice cream flavours. On selection of any flavour price should be displayed in a text field. 13. Write a JDBC program to create a table product (id number, name varchar. Price varchar). And insert a record in the table.

	14. Write a program to execute a select query using JDBC. 15. Write a program to execute an Update query using JDBC. 16. Write a server program to return the square root of a number to the client using Socket. 17. Write a server program to return Date and time to clients using socket programming. 18. Write a JSP program for basic arithmetic functions. 19. Write a advance java program to implement registration of student by using JSP. 20. Write a program to design a web page for login form and connect to the database while using JSP and JDBC.

Part C - Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

1. The Complete Reference JAVA, Herbert Scheldt, Tata McGraw Hill publication, 5° Edition.
2. Advance JAVA, Gajendra Gupta, Firewall Media, 1" Edition, 2006.
3. JAVA network programming, Elliotte Rusty Harold, O'Reilly Publication, 3" Edition.
4. Core Java for Beginners, Rashmi Kanta Das, Vikas Publishing House Pvt. Ltd.

E Resources:

1. Introduction to Java
   https://www.youtube.com/watch?v=OjdT2l-EZJA&list=PLfn3cNtmZdPOe3R_wO_h540QNfMkCQ0ho&index=1
2. Introduction to Database
   https://www.youtube.com/watch?v=mtc0HHrUKpI&list=PLJ5C_6qdAvBEJ6-TBzKoa1Ov21lwDzJfM&index=12
3. Introduction to SQL
   https://www.youtube.com/watch?v=ar2naKy0aPw&list=PLJ5C_6qdAvBEJ6-TBzKoa1Ov21lwDzJfM&index=16

Part D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:
Maximum Marks: 100
Continuous Comprehensive Evaluation (CCE): Not Applicable
University Exam(UE): 100 Marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	Not Applicable

Declaration

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DATE: 03.06.2022

Part A: Introduction				
Program: **Degree Course**		Class: **B.C.A. III Year**	Year: **2022**	Session: **2022-2023**
1	Course Code	**BCA-6P**		
2	Course Title	**LAB 6: Python**		
3	Course Type	**Practical**		
4	Pre-requisite (if any)	Theoretical knowledge of Java and Python		
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Develop front end application using front end technologies. • Demonstrate the principles of object-oriented programming. • Learn the Numbers, Math functions, Strings, List in Python. • Learn the tuples and dictionaries in Python. • Demonstrate proficiency in handling of loops and creation of functions. • Identify the methods to create and manipulate lists, tuples and dictionaries. • Express different Decision-Making statements and Functions.		
6	**Credit Value**	**Practical: 2**		
7	**Total Marks**	**Max. Marks: 100**	**Min Passing Marks : 33**	

Part B: **Content of the Course**	
Total Periods: 30	
Tentative Practical List	**Note:** This is tentative list; the teachers concern can add more program as per requirement. 1. Python program to find the union of two lists. 2. Python program to find the intersection of two lists. 3. Using for loop, print a table of Celsius/Fahrenheit equivalences. Let c be the Celsius temperatures ranging from 0 to 100, for each value of c, print the corresponding Fahrenheit temperature. 4. Using while loop, produce a table of sins, cosines and tangents. Make a variable x in range from 0 to 10 in steps of 0.2. For each value of x, print the value of sin(x), cos(x) and tan(x). 5. Write a program that reads an integer value and prints —leap yearǁ or —not a leap yearǁ. 6. Write a program that takes a positive integer n and then produces n lines of output shown as follows. For example, enter a size: 5 * ** *** **** ***** 7. Write a function that takes an integer _n‘as input and calculates the value of 1 + 1/1! + 1/2! + 1/3! + … + 1/n 8. Write a function that takes an integer input and calculates the factorial of that number. 9. Write a function that takes a string input and checks if it‘s a palindrome or not.

	10. Write a list function to convert a string into a list, as in list (_abc') gives [a, b, c]. 11. Write a program to generate Fibonacci series. 12. Write a program to check whether the input number is even or odd. 13. Write a program to compare three numbers and print the largest one. 14. Write a program to print factors of a given number. 15. Write a method to calculate GCD of two numbers. 16. Write a program to create Stack Class and implement all its methods. (Use Lists). 17. Write a program to create Queue Class and implement all its methods. (Use Lists) 18. Write a program to implement linear and binary search on lists. 19. Write a program to sort a list using insertion sort and bubble sort. 20. Python program to remove the "i" th occurrence of the given word in a list where words repeat. 21. Python program to count the occurrences of each word in a given string sentence. 22. Python program to check if a substring is present in a given string. 23. Python program to map two lists into a dictionary. 24. Python program to count the frequency of words appearing in a string using a dictionary. 25. Python program to create a dictionary with key as first character and value as words starting with that character. 26. Python program to find the length of a list using recursion. 27. Python program to read a file and capitalize the first letter of every word in the file. 28. Python program to read the contents of a file in reverse order. 29. Python program to create a class in which one method accepts a string from the user and another prints it. 30. Study and Implementation of Database, Structured Query Language and database connectivity.

Part C - Learning Resources
Text Books, Reference Books, Other Resources

Suggested Readings:

T. Budd, Exploring Python, TMH, 1st Ed, 2011

1. Allen Downey, Jeffrey Elkner, Chris Meyers, How to think like a computer scientist: Learning with Pyth,Freelyavailableonline.2012
2. Luca Massaron John Paul Mueller, Python for Data Science For Dummies, Wiley, 2ed, 2019
3. Allen B. Downey, Think Python: How to Think Like a Computer Scientist, 2nd edition by O'Reilly, 2015
4. Zed A. Shaw, Learn Python 3 the Hard Way (Addison-Wesley, 2016)

E Resources:

1. Introduction
   https://www.w3schools.com/python/default.asp
2. File Handling
   https://www.w3schools.com/python/python_file_handling.asp
3. NumPy
   https://www.w3schools.com/python/numpy/default.asp
4. Pandas
   https://www.w3schools.com/python/pandas/default.asp
5. SciPy

https://www.w3schools.com/python/scipy/index.php

6. Django
   https://www.w3schools.com/django/index.php
7. Matplotlib
   https://www.w3schools.com/python/matplotlib_intro.asp
8. Machine Learning
   https://www.w3schools.com/python/python_ml_getting_started.asp
9. Python MySQL
   https://www.w3schools.com/python/python_mysql_getstarted.asp
10. https://www.youtube.com/channel/UCxu1cR5XRauYn37yg-Fh6rA (from SWAYAM/NPTEL)
    https://www.youtube.com/channel/UCJAgw1niUkaShdmA5aAZdQw

Part D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:
Maximum Marks: 100
Continuous Comprehensive Evaluation (CCE): Not Applicable
University Exam(UE): 100 Marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	Not Applicable

Declaration

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DATE: 03.06.2022

Part A: Introduction				
Program: **Degree Course**		Class: **B.C.A. III Year**	Year: **2022**	Session: **2022-2023**
1	Course Code	**BCA-7P**		
2	Course Title	**LAB 7: Project**		
3	Course Type	**Practical**		
4	Pre-requisite (if any)	Theoretical knowledge of Java and Python		
5	Course Learning Outcomes (CLO)	At the end of this course, the students will be able to: • Evaluate the framework and characteristics of a project. • Identifying areas for improvement.		
6	Credit Value	**Practical: 5**		
7	Total Marks	**Max. Marks: 100**	**Min Passing Marks : 33**	

Part B: **Important Guidelines for Project**

Total Periods: 30

A project report has to be submitted as per the rules described below:

1. **Number of Copies:** The student should submit One hard bound copy of the Project Report with one RW/CD/DVD.
2. **No of students:** Every student has to submit separate project.
3. **Acceptance / Rejection of Project Report:** The student must submit a project report to the Head of Department/Project Guide for approval. The Head of Department/Project Guide holds the right to accept the project or suggest modifications for resubmission.
4. **Format of the Project Report :**The student must adhere strictly to the following format for the submission of the Project Report
   - **I. Paper:** The report shall be typed on white paper, A4 size or continuous computer stationary bond, for the final submission. The report to be submitted to the University must be original and subsequent copies may be photocopied on any paper.
   - **II. Typing:** The typing shall be of standard letter size, double-spaced and on one side of the paper only, using black ribbons and black carbons.
   - **III. Margins:** The typing must be done in the following margins
     Left ----- 35mm, Right ----- 20mm
     Top ----- 35mm, Bottom ----- 20mm
   - **IV. Binding:** The Report shall be Rexene bound in black. Plastic, spiral bound Project Reports not be accepted.
   - **V. Front Cover:** The front cover should contain the following details:
     TOP: The title in block capitals of 6mm to 15mm letters.
     CENTER: Full name in block capitals of 6mm to 10mm letters.
     BOTTOM: Name of the University, year of submission- all in block capitals of 6mm to 10mm letters on separate lines with proper spacing and centring.
   - **VI. Blank Sheets:** At the beginning and end of the report , two white black bound papers should be provided, one for the purpose of binding and other to be left blank.

5. **Abstract:** Every report should have an abstract following the Institute's Certificate. The abstract shall guide the reader by highlighting the important material contained in the individual chapters, section, subsection etc.
6. **Certificates etc:** The report should contain the following:
    I. Certificate from Company
    II. Institute Certificate: Successful completion of project by competent authority.
    III. Acknowledgment
    IV. List of Figures
    V. Tables
    VI. Nomenclature and Abbreviations
7. **Contents of the Project Report:** The project report must contain following in form of chapter, however student may include any other relevant chapter(s):
    I. **Company Profile:** This chapter should highlight the company details. This would be chapter 1 and should include the main stream activity of the company, the product line of the company and the details of the department where the student has carried out his/her project work. This should not exceed two pages or 800 words.
    II. **Introduction to the project:** This chapter shall highlight the purpose of project work, it will also define the chapters to be followed in the Project Report.
    III. **Scope of work:** Brief scope of the project work done
    IV. **Existing System and Need for proposed System:** If there is some system already in use, then give brief detail of it in order to help to understand the enhancements carried out by the student in the existing system.
    V. **Operating Environment**: Hardware and Software required and used.
    VI. **Proposed System:** Which may contain following:
        a. **Objectives to be fulfilled**: clearly define the objective(s) of the system.
        b. **User Requirements**: State the requirements of the use in an unambiguous manner.
        c. **Requirements Determination Techniques and Systems Analysis Methods Employed:** Use the formal methods to describe the requirements of the use like Fact Finding Methods, Decision Analysis, Data Flow Analysis etc.
        d. **Prototyping:** If the prototypes has been developed prior to the detailed design, then give details of the prototype.
        e. **System Feature**: Which includes as follows:
            - Module specifications
            - D.F.D. and ER
            - System flow charts
            - Data Dictionary
            - Structure charts
            - Database /File layouts
            - Design of Input Design of Output screens and reports
            - User Interfaces
            - Design of Control Procedures
8. **Testing procedures and Implementation phase**
9. **Problems encountered, Drawbacks and Limitations**

10. Proposed Enhancements/ Future enhancement **11. Conclusions** **12. Bibliography** **Annexure**

Part C - Learning Resources		
Text Books, Reference Books, Other Resources		
Suggested Readings: Not Applicable **E-Resources:**		
Part D: Assessment and Evaluation		
Suggested Continuous Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): Not Applicable University Exam(UE): 100 Marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	Not Applicable

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Date: 03-06-2022

Part A: Introduction				
Program: **Degree Course**		Class: **B.C.A. III Year**	Year: **2022**	Session:**2022-2023**
1.	Course Code	**BCA-15T**		
2.	Course Title	**Python Programming**		
3.	Course Type	**Theory**		
4.	Pre-requisite (if any)	Basic knowledge of programming and concept of object oriented programming		
5.	Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to: • Define the structure and components of a Python program. • Demonstrate proficiency in handling of loops and creation of functions. Identify the methods to create and manipulate lists, tuples and dictionaries. • Discover the commonly used operations involving regular expressions and file system. • Determine the need for scraping websites and working with CSV, JSON and other file formats. • Interpret the concepts of Object-Oriented Programming as used in Python.		
6.	**Credit Value**	**Theory : 4**		
7.	**Total Marks**	**Max. Marks: 25+75**	**Min Passing Marks : 33**	

Part B: Content of the Course		
Total Periods: 60		
Unit	**Topics**	**No. of Periods**
I.	**Introduction to Python:** Installing Python, basic syntax, interactive shell, editing, saving, and running a script, the concept of data types; variables, assignments; immutable variables; numerical types, Operators (Arithmetic Operator, Relational Operator, Logical or Boolean operator, Assignment, Operator, Ternary operator, Bit wise Operator, Increment or Decrement operator) and Expressions, comments in the program, understanding error messages.	12
II.	**Creating Python Programs:** Input and Output Statements, Control statements (Branching, Looping, Conditional Statement, exit function, Difference between break, continue and pass.) **Function:** Defining a function, calling a function, Types of functions, Function Arguments, Anonymous functions, Global and local variables.	12
III.	**Strings and text files**: manipulating files and directories, os and sys modules; text files: reading/writing text and numbers from/to a file; creating and reading a formatted file (csv or tab-separated). **String manipulations:** subscript operator, indexing, slicing a string; **strings and number system**: converting strings to numbers and vice- versa. Binary, Octal, Hexadecimal numbers.	12
IV.	**Lists, Tuples, and Dictionaries;** Basic list Operators, replacing, inserting, removing an element, searching and sorting lists, Accessing tuples, Operations, Working, Functions and Methods, dictionary literals, adding and removing keys, accessing and replacing values, Traversing Dictionaries.	12

V.	**Exception Handling:** Exception, Exception Handling, except clause, try, finally, clause, User defined exceptions. **Python Libraries:** Exploring python libraries like Panda, Numpy, TensorFlow, Scikit-Learn, Keras, PyTorch, SciPy etc.	12
Keywords: List, Tuple, Dictionary, Panda, Numpy, TensorFlow, Scikit-Learn, Keras, PyTorch, SciPy.		

Part C - Learning Resources

Text Books, Reference Books, Other Resources

Suggested Readings:

1. T. Budd, Exploring Python, TMH, 1st Ed, 2011
2. Allen Downey, Jeffrey Elkner, Chris Meyers, How to think like a computer scientist: Learning with Pyth, Freelyavailableonline, 2012
3. Luca Massaron John Paul Mueller, Python for Data Science For Dummies, Wiley, 2ed, 2019
4. Allen B. Downey, Think Python: How to Think Like a Computer Scientist, 2nd edition, O'Reilly, 2015
5. Zed A. Shaw, Learn Python 3 the Hard Way, Addison-Wesley, 2016

E-Resources:

1. Introduction
   https://www.w3schools.com/python/default.asp
2. File Handling
   https://www.w3schools.com/python/python_file_handling.asp
3. NumPy
   https://www.w3schools.com/python/numpy/default.asp
4. Pandas
   https://www.w3schools.com/python/pandas/default.asp
5. SciPy
   https://www.w3schools.com/python/scipy/index.php
6. Django
   https://www.w3schools.com/django/index.php
7. Matplotlib
   https://www.w3schools.com/python/matplotlib_intro.asp
8. Machine Learning
   https://www.w3schools.com/python/python_ml_getting_started.asp
9. Python MySQL
   https://www.w3schools.com/python/python_mysql_getstarted.asp
10. Topics related Python from SWAYAM/NPTEL
    https://www.youtube.com/channel/UCxu1cR5XRauYn37yg-Fh6rA
    https://www.youtube.com/channel/UCJAgw1niUkaShdmA5aAZdQw
11. Introduction to Python Programming from Coursera:
    https://www.coursera.org/learn/python-programming-intro

12. Crash Course on Python:
https://www.coursera.org/learn/python-crash-course

13. Python for everybody:
https://www.coursera.org/specializations/python

14. Introduction to Scripting in Python Specialization
https://www.coursera.org/specializations/introduction-scripting-in-python

15. Topics related to Python from Tutorials
https://www.javatpoint.com/python-tutorial
http://docs.python.org/3/tutorial/index.html
http://interactivepython.org/courselib/static/pythonds
http://www.ibiblio.org/g2swap/byteofpython/read/

Part D: Assessment and Evaluation		
Suggested Continuous Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 25 Marks University Exam(UE): 75 Marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	25 Marks

Declaration

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Prof. and Head, Dept. of Computer Science (Present Online)
Devi Ahila Vishwavidyalaya, Indore

Date: 03.06.2022

Part A: Introduction				
Program: **Degree Course**		Class: **B.C.A. III Year**	Year: **2022**	Session:**2022-2023**
1.	Course Code	**BCA-16T**		
2.	Course Title	**Java Programming**		
3.	Course Type	**Theory**		
4.	Pre-requisite (if any)	No		
5.	Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to: • Develop programming skill and learn how to implement new Platform Independent software. • Develop new Packages which help them to develop new application software and Utility Software. • Develop new Online Software and Internet Games with the help of Applet and AWT Packages. • Learn about TCP/IP Client and Server Sockets which helps them to develop Networking Software • Familiar about Applet, Thread and Servlet Life Cycle which helps them to develop value added services for Internet Users. • Learn about new Integrated Development Environment and new Web servers.		
6.	**Credit Value**	**Theory: 4**		
7.	**Total Marks**	**Max Marks: 25+75**	**Min Passing Marks : 33**	

Part B: **Content of the Course**		
Total Periods: 60		
Unit	**Topics**	**No. of Periods**
I.	**Overview of JAVA:** The genesis of java, History of java, Java Virtual Machine (JVM), Java development kit (JDK), Source Files, Jar Files, Compiling and Running of Files, Byte Code, Platform Independency, Data types, Literals, Variables, Constants, Array and it's types, Operators, Conditional and looping statements, various packages, Introduction of class, objects and methods, nested and inner class, string handling, constructor, writing simple JAVA program.	12
II.	**Inheritance, Packages and interface-** Concept of super and sub class, types of inheritance, access specifiers, Method Overriding, Abstract Class, Constructor in Multilevel Inheritance, using final with Inheritance. **Package:** Defining package, Rules for creating a new Package, CLASSPATH, Access protection, Importing Package .**Interface:** Defining and Implementing Interface, extending interface, nested interface, importance of interface in Java.	12
III.	**Exception Handling and Multithreading:** Using try and catch, multiple catch classes, Nested try statements, throw, throws and finally, Built in Exception, Uncaught Exception, Creating own Exception class. **Java Thread Model:** Main thread, Creating own Thread, Life cycle of thread, Thread priorities, Synchronization, Interthread Communication, Suspending, Resuming and Stopping thread.	12

IV.	**Java Packages: I/O classes:** Byte Stream and Character Stream, Predefined Stream, reading console input, writing console output. **Applet:** Applet Life Cycle, Creating an applet, Using image and sound in applet. **Lang:** Various classes, Importance class Definition, **Util:** Framework, Event Model, Scanner Class **AWT:** Exploring AWT, Event handling – The delegation-event model, Event classes, Source of event, Event listener interfaces ,handling mouse and keyboard event ,Adapter class **Networking:** classes and interface ,Socket, TCP/IP Client Socket and Server Socket, Inet address, URL Connection.	12
V.	**Server site programming and database connectivity:** Servlet – Overview of Servlet, Life cycle of servlet, JAVA servlet architecture , Generic servlet and http servlet ,The servlet interface, Request and response **Integrated Development Environment:** Eclipse IDE, Netbeans IDE, MyEclipse IDE **Web Servers:** Apache Tomcat Web Server, JBoss Server **Database Connectivity:** JDBC API, Basic Connectivity with Oracle and SQL Server.	12
Keywords: Class, Packages, Web Servers, Servlet, Applet, Socket, Java Server Pages (JSP).		

Part C - **Learning Resource**

Text Books, Reference Books, Other Resources

Suggested Readings:

1. The complete reference, Naughton P and Schildt H., Osborne , McGraw-Hill, Berkeley Publication.
2. An Introduction to JAVA programming, James R. Levenick ,Firewall Media publication.
3. Java Programming,By E.Balgurusamy, McGraw-HillPublication.
4. Core JAVA for beginners, Rashmi KantaDas ,Vikas Publication.
5. SWAYAM url link for Java : https://onlinecourses.swayam2.ac.in/aic20_sp13/preview
6. SWAYAM url link for Java : https://onlinecourses.nptel.ac.in/noc19_cs84/preview
7. SWAYAM url link for Java : https://www.dqindia.com/iit-bombay-offers-free-online-course-java-swayam-platform/
8. SWAYAM url link for Java : https://www.classcentral.com/course/swayam-programming-in-java-12930

Part D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:
MaximumMarks:100
Continuous Comprehensive Evaluation (CCE): 25 Marks
University Exam(UE): 75 Marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	25 Marks

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Date : 03.06.2022

Part A: Introduction				
Program: **Degree Course**		Class: **BCA III Year**	Year: **2022**	Session: **2022-2023**
1.	Course Code	**BCA-17T**		
2.	Course Title	**Software Engineering**		
3.	Course Type	**Theory**		
4.	Pre-requisite (if any)	Basic Knowledge of programming methodology and database management system		
5.	Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to: • Basic knowledge and understanding of the analysis and design of complex systems. • Ability to apply software engineering principles and techniques. • To produce efficient, reliable, robust and cost-effective software solutions. • Ability to work as an effective member or leader of software engineering teams. • To manage time, processes and resources effectively by prioritising competing demands to achieve personal and team goals Identify and analyzes the common threats in each domain.		
6.	**Credit Value**	**Theory : 6**		
7.	**Total Marks**	**Max. Marks: 25 +75**	**Min Passing Marks : 33**	

Part B: Content of the Course		
Total Periods: 90		
Unit	Topics	No. of Periods
I.	**Software Development Approaches**: Introduction; Evolving Role of Software; Software Characteristics; Software Applications. Software Design Processes: Introduction; What is Meant by Software Engineering? , Definitions of Software Engineering; The Serial or Linear Sequential Development Model; Iterative Development Model; The Incremental Development Model.	18
II.	**Software Design Principles**: Introduction, System Models: Data -flow Models, Semantic Data Models, Object Models, Inheritance Models, Object Aggregation, Service Usage Models, Data Dictionaries; Software Design: The Design Process, Design Methods, Design description, Design Strategies, Design Quality; Architectural Design: System Structuring, The Repository Model, The Client–Server Model, The Abstract Machine Model, Control Models, Modular Decomposition, Domain-Specific Architectures.	18
III.	**Object Oriented Design:** Introduction; Object Oriented Design: Objects, Object Classes & Inheritance, Inheritance, Object Identification, An Object -Oriented Design Example, Object Aggregation; Service Usage; Object Interface Design: Design Evolution, Function Oriented Design, Data–Flow Design; Structural Decomposition: Detailed Design.	18
IV.	**An Assessment of Process Life-Cycle Models**: Introduction; Overview of the Assessment of Process; The Dimension of Time; The Need for a Business Model in Software Engineering; Classic Invalid Assumptions: First Assumption: Internal or External Drivers, Second Assumption: Software or Business Processes, Third Assumption: Processes or Projects, Fourth Assumption: Process Centered or Architecture Centered; Implications of the New Business Model;	18

	Redefining the Software Engineering Process: Round-Trip Problem-Solving Approach, Activities, Goals, Interdisciplinary Resources, Time.	
V.	**Software Reliability: Introduction;** Software Reliability Metrics; Programming for Reliability: Fault Avoidance, Fault Tolerance, Software Reuse. **Software Testing Techniques:** Introduction; Software Testing Fundamental; Testing Principles; White Box Testing; Control Structure Testing; Black Box Testing; Boundary Value Analysis; Testing GUIs; Testing Documentation and Help Facilities; Software Testing Strategies: Introduction; Organizing for Software Testing; Software Testing Strategy, Unit Testing: Unit Test Considerations, Top -Down Integration, Bottom-Up Integration.	12
Keywords: Software Engineering, Development Model, Data Flow Model, Data Dictionary, Testing.		

Part C - **Learning Resource**
Text Books, Reference Books, Other Resources

Suggested Readings:

1. R. G. Pressman – Software Engineering, TMH
2. Sommerville, Ian, Software Engineering, Pearson Education
3. Pankaj Jalote – An Integrated Approach to Software Engineering, Narosa Publications.
4. Pfleeger, Shari Lawrence, Software Engineering Theory and Practice, second edition. Prentice- Hall 2001.
5. Object Oriented & Classical Software Engineering (Fifth Edition), SCHACH,TMH

E Resources:

1. Introduction to Software Engineering from NPTEL: https://nptel.ac.in/courses/106101061
2. Software Engineering from Coursera https://www.coursera.org/specializations/software-engineering
3. Software Development Life Cycle from Coursera: https://www.coursera.org/specializations/software-development-lifecycle
4. Software Design Architecture fromCoursera: https://www.coursera.org/specializations/software-design-architecture
5. Software Engineering from SWAYAM/NPTEL https://onlinecourses.nptel.ac.in/noc19_cs69/preview

Part D: **Assessment and Evaluation**		
Suggested Continuous Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 25 Marks University Exam(UE): 75 Marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	25 Marks

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    Devi Ahila Vishwavidyalaya, Indore

Date: 03.06.2022

Part A: Introduction				
Program: **Degree Course**		Class: **B.C.A. III Year**	Year: **2022**	Session:2022-2023
1.	Course Code	**BCA-18T**		
2.	Course Title	**Artificial Intelligence and Expert System**		
3.	Course Type	**Theory**		
4.	Pre-requisite (if any)	Basic knowledge of data structure		
5.	Course Learning. Outcomes (CLO)	At the end of this course, the students will be able to: • Understand a wide variety of learning algorithm. • Understand how to evaluate models generated form data. • Apply the algorithm to a real-world problem, optimize the models learned and report on the expected accuracy that can be achieved by applying the models. • Apply ML algorithms in various domains. • Simulate real world problems using ML Techniques. • Apply Deep Learning technique for Computer Vision.		
6.	**Credit Value**	**Theory: 6**		
7.	**Total Marks**	**Max Marks: 25+75**	**Min Passing Marks: 33**	

Part B: Content of the Course		
Total Periods: 90		
Unit	Topics	No. of Periods
I.	**Introduction:** Overview of Artificial Intelligence (AI), Domains of Artificial Intelligence, Foundations of AI, Domain-base and Knowledge-base Database, History of AI, Areas and state of the art in A.I., A.I. problems, Knowledge: Introduction, Knowledge Based system, Knowledge representation techniques.	18
II.	**Searching Technique:** Problem solving as state space search, production system, control strategies a problem characteristic, Search techniques: Breadth First search, Depth-first search, Hill-climbing Heuristic search, Best-First search, greedy method, A* algorithm , AO* algorithm.	18
III.	**A.I. Programming languages:** Introduction to LISP, Basic list manipulation functions, Input/output and local variables, Lists and Arrays, simple program in LISP, Introduction to PROLOG.	18
IV.	**Knowledge Representation:** Approaches and Issues ,Frame, Conceptual dependency , Semantic Net, Scripts etc. ,Propositional Logic, First order, Propositional Logic (FOPL), Conversion to clausal form, Inference rules, Resolution principal.	18
V.	**Expert System-** Introduction, Application, Existing Expert systems, Components of typical expert system, Rule based system architecture.	18
Keywords: Heuristic Search, A* Search, Artificial Intelligence (AI), List Processing (LISP), Programming in Logic (PROLOG), Expert System.		

Part C - Learning Resources
Text Books, Reference Books, Other Resources

Suggested Readings:

1. Artificial Intelligence and Machine Learning, Vinod Chandra S.S., AnandHareendrn S, PHI learning private Ltd.
2. Introduction to Artificial Intelligence and Expert System, Dan W. Patterson, PHI Publication.
3. Artificial Intelligence, Elaine Rich and Kevin Knight TMH publication.
4. Dan W. Patterson, Introduction to Artificial Intelligence and Expert Systems , PHI Publication.
5. Elaine Rich and Kevin Knight , Artificial Intelligence ,TMH publication.
6. V.S. Jankiraman, K. Sarukesi and P. Gopalakrishnan ,Foundations of Artificial Intelligence and Expert Systems , Macmillan Series in Computer Science.

E Resources:

1. Overview of Machine Learning
   https://www.youtube.com/watch?v=whSKA8aO6xQ&list=PLyqSpQzTE6M-SISTunGRBRiZk7opYBf_K&index=3
2. Introduction to Artificial Intelligence
   https://www.youtube.com/watch?v=pKeVMlkFpRc&list=PLwdnzlV3ogoXaceHrrFVZCJKbm_laSHcH&index=2
3. Problem Solving as State Space Search
   https://www.youtube.com/watch?v=fLw8SfvaJWA&list=PLwdnzlV3ogoXaceHrrFVZCJKbm_laSHcH&index=3
4. Uninformed Search
   https://www.youtube.com/watch?v=te1K8on1Pk0&list=PLwdnzlV3ogoXaceHrrFVZCJKbm_laSHcH&index=4
5. Heuristic Search
   https://www.youtube.com/watch?v=0awSpFyh2MY&list=PLwdnzlV3ogoXaceHrrFVZCJKbm_laSHcH&index=5
6. Informed Search
   https://www.youtube.com/watch?v=-Rf2hOyjZB8&list=PLwdnzlV3ogoXaceHrrFVZCJKbm_laSHcH&index=6

Part D: Assessment and Evaluation

Suggested Continuous Evaluation Methods:
Maximum Marks: 100
Continuous Comprehensive Evaluation (CCE): 25 Marks
University Exam(UE): 75 Marks

Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	25 Marks

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Date: 03.06.2022

Part A: Introduction				
Program: **Degree Course**		Class: **BCA III Year**	Year: **2022**	Session:**2021-22**
1	Course Code	**BCA-19T**		
2	Course Title	**E-Commerce**		
3	Course Type	**Theory**		
4	Pre-requisite (if any)	No		
5	Course Learning. Outcomes (CLO)	• At the end of this course, the students will be able to become familiar with the mechanism for conducting business transactions through electronic means.		
6	**Credit Value**	**Theory: 6**		
7	**Total Marks**	**Max. Marks: 25+75**	**Min Passing Marks: 33**	

Part B: **Content of the Course**		
Total No. of Periods: 90		
Unit	**Topics**	**No. of Periods**
I	**Introduction of E-Commerce:** Meaning, nature, concepts, advantages, disadvantages and reasons for transacting online, types of E-Commerce, e-commerce business models (introduction , key elements of a business model and categorizing major E-commerce business models), forces behind ecommerce. **Technology used in E-commerce:** The dynamics of world wide web and internet (meaning, evolution and features); Designing, building and launching e-commerce website (A systematic approach involving decisions regarding selection of hardware, software, outsourcing vs. in-house development of a website).	18
II	**Security and Encryption:** Need and concepts, the e-commerce security environment: (dimension, definition and scope of e-security), security threats in the E-commerce environment (security intrusions and breaches, attacking methods like hacking, sniffing, cyber-vandalism etc.), technology solutions (Encryption, security channels of communication, protecting networks and protecting servers and clients).	18
III	**IT Act 2000 and Cyber Crimes:** IT Act 2000: Definitions, Digital signature, Electronic governance, Attribution, acknowledgement and dispatch of electronic records, Regulation of certifying authorities, Digital signatures certificates, Duties of subscribers, Penalties and adjudication, Appellate Tribunal, Offences and Cyber-crimes.	18
IV	**E-payment System**: Models and methods of e–payments (Debit Card, Credit Card, Smart Cards, e-money, UPI payment), digital signatures (procedure, working and legal position), payment gateways, online banking (meaning, concepts, importance, electronic fund transfer, automated clearing house, automated ledger posting), risks involved in e-payments.	18
V	**On-line Business Transactions:** Meaning, purpose, advantages and disadvantages of transacting online, E-commerce applications in various industries like banking, insurance, payment of utility bills, online marketing, e-tailing (popularity, benefits, problems and features), online services (financial, travel and career), auctions, online portal, online learning, publishing and entertainment, Online shopping.	18
Keywords: E-Commerce, Encryption, IT Act, Cyber Crime, E-Payment Systems, Online Business Transactions.		

Part C - **Learning Resources**
Text Books, Reference Books, Other Resources

Suggested Readings

1. Kenneth C. Laudon and Carlo Guercio Traver, E-Commerce, Pearson Education.
2. David Whiteley, E-commerce: Strategy, Technology and Applications, McGraw Hill Education.
3. Bharat Bhaskar, Electronic Commerce: Framework, Technology and Application, 4th Ed., McGraw Hill Education.
4. PT Joseph, E-Commerce: An Indian Perspective, PHI Learning.
5. KK Bajaj and Debjani Nag, E-commerce, McGraw Hill Education.
6. TN Chhabra, E-Commerce, Dhanpat Rai & Co.
7. Sushila Madan, E-Commerce, Taxmann
8. TN Chhabra, Hem Chand Jain, and Aruna Jain, An Introduction to HTML, Dhanpat Rai & Co.

E Resources: –

1. Electronic Commerce : https://www.youtube.com/watch?v=xKJjyn8DaAw
2. Technology used in E-Commerce : https://www.youtube.com/watch?v=cPVwPQCsROc
3. E-Commerce : https://www.tutorialspoint.com/e_commerce/index.htm
4. E-Commerce : https://egyankosh.ac.in/handle/123456789/72073

Part D: **Assessment and Evaluation**		
Suggested Continuous Evaluation Methods: Maximum Marks: 100 Continuous Comprehensive Evaluation (CCE): 25 Marks University Exam(UE): 75 Marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	25 Marks

Declaration

The syllabus of this subject is framedas per the TOR of department of higher education, Chhattisgarh.

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13. Dr. Ugrasen Suman - Member (Present Online)
    Prof. and Head, Dept. of Computer Science
    Devi Ahila Vishwavidyalaya, Indore

Date: 03-06-2022

Part A: Introduction				
Program: **Degree Course**		Class: **BCA III Year**	Year: **2022**	Session:**2022-23**
1	Course Code	**BCA-20T**		
2	Course Title	**Communication Skill**		
3	Course Type	Ability Enhancement Course		
4	Pre-requisite (if any)	To study this course, a student must have command over English Language which will be helpful to learn the subject		
5	Course Learning. Outcomes (CLO)	At the end of this course, the students of computer application will be able to speak and write english with a fare degree of grammatical correctness. The inputs in the course contents are designed to let the students develop their communication skills and effectively write and speak in business scenario.		
6	**Credit Value**	**Theory : 5**		
7	**Total Marks**	**Max. Marks: 50**	**Min Passing Marks : 17**	

Part B: Content of the Course		
Total Periods: 75		
Unit	**Topics**	**No. of Periods**
I	**Structure of sentences:** Simple, Complex and Compound. **Clauses:** Co-ordinate and Subordinate Clause, The senses and aspects, Model, Gerund, Participle: Non Finite and Finite, Infinitive.	15
II	**Transformation of sentences:** Interchange of Active and Passive Voice, Interchange of Affirmative and Negative Sentences, Interchange of Explanative and Assertive Sentences, Interchange of Interrogative and Assertive Sentences, Direct and Indirect Speech.	15
III	**Writing Skills:** Report writing, Resume writing, Applications writing, Letter writings: Formal (Covering Letter, Enquiry Letter, Order Letter, Complaint Letter, Sales Letter) and Informal, Description of events-Designing of Poster, Flyer, Banner.	15
IV	**Presentation Skills:** Precise Writing, Reading Comprehension, Summarizing, Paraphrasing, Presentation Skills, Interview Skills, Group Discussion.	15
V	**Official Communication:** Notice, Circular, Minutes of meeting, Agenda of Meeting, Memorandum. Modern media of communication-Email (Language of Email, Format, E-mail writing strategies, Advantage, Characteristics, Formatting), Use of Social Media, Video Conferencing.	15
Keywords: Clauses, Transformation of Sentences, Writing Skills, Paraphrasing, Official Communication, Social Media.		

Part C - **Learning Resource**
Text Books, Reference Books, Other Resources

Suggested Readings:

Text Books:

1. Living English Structure by W.S. Allen.
2. A Practical English Grammar by Thomson and Martinet
3. English Grammar and Composition by Wren & Martin
4. Advance Grammar in Use by Martin Hewings
5. Essentials of Business Communication by Rajendra Pal and J.L. Korlahalli
6. Effective Technical Communication by M. Ashraf Rizvi

E-Resources:

1. Grammar (Clauses, Gerund and Infinitives, Coordinating conjunctions) - https://www.digimat.in/nptel/courses/video/109106129/L13.html
2. Voice : https://www.grammarly.com/blog/active-vs-passive-voice/
3. Report Writing : https://www.grammarly.com/blog/how-to-write-a-report/

Part D: **Assessment and Evaluation**		
Suggested Continuous Evaluation Methods: Maximum Marks: 50 Continuous Comprehensive Evaluation (CCE): As per rule University Exam(UE): 50 Marks		
Internal Assessment: Continuous Comprehensive Evaluation (CCE)	Class Test/Assignment/Presentation	As per rule

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