



K.V.R. Govt. College for Women (A), Kurnool.

Common Framework of CBCS for Colleges in Andhra Pradesh
w.e.f. 2018 – 2019 (Revised in April, 2016)

Semester – VI

Paper – VIII-A-1 (Cluster Elective Paper -1) CULTURAL TOURISM IN ANDHRA PRADESH

Unit – I	Concepts of Tourism : Nature – Scope – Definition – Tourists & Excursionists – Domestic & International Tourists.
Unit – II	Types of Tourism : Heritage Tourism – Pilgrimage Tourism – Recreation Tourism – Sports & Adventure Tourism – Advance Tourism – Health Tourism – Environment Tourism.
Unit – III	History and Tourism – Heritage Sites – Definition – Ancient Monuments Preservation Act of 1904, Act of 1958 and Act of 1972 – Archaeological Survey of India – Stage Museums.
Unit – IV	Planning and Development of A.P. Tourism : APTDC – Aims & Objectives – Fairs & Festivals – Andhra Cuisine – Restaurants – Eco Tourism – Beaches & Hills Resorts – Mountaineering – Tourist Places in A.P.
Unit – V	Modalities of Conducting Tourism : Field work – Visit to a site – Conduct of Research – Preparation of Project Report.

Reference :

1	APTDC Publications
2	Ashorth G.J. Marketing in Tourism Industry
3	Bhatia A.K. Tourism Development
4	Clare, Gunn, Tourism Planning
5	Khan, Nafees A, Development Tourism in India
6	Krishna K Karama, Basics of Tourism
7	Marrison A.M. Hospitality and Travel Marketing
8	Ranga Mukesh, Tourism Potential in India
9	Sarkar H, Museums and Protection of Monuments and Antiquities in india
10	Vijayalaxmi K.S., History of Tourism.

Field Trip : Compulsory field trip to destinations of architectural archaeological, historical and cultural importance is to be conducted. Students should be made to prepare detailed report on the hand – on experience they gained in such trips.

Students should be encouraged to create blogs for local site seeing places and to write and organize articles on those sports.



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Semester – VI

Paper – VIII-A-2 (Cluster Elective Paper -2)

POPULAR MOVEMENTS IN ANDHRA DESA (1848 to 1956 A.D.)

(History and Culture of Andhra from 1857 to 2014)

Unit – I	Social & Self Respect Movements : Social Conditions – Kandukuri Veeresalingam, Raghupathi Venkata Rathnam Naidu, Guruzada Apparao, Komarraju Venkata Laxmana Rao, New Literary Movements : Causes – Rayaprolu Subbrao, Viswanatha Sathanarayana, Gurram Jashua, Boyi Bheemanna, Sri Sri – Impact.
Unit – II	Freedom Movement in Andhra (1885 – 1920) : Contributory Factors – Vandemataram Movement – Swadeshi & Boycott programs – Glorious Event at Rajahmundry, Kakinada, Kotappakonda & Tenali – Home Rule Movement in Andhra.
Unit – III	Freedom Movement in Andhra (1920 – 1947) : Non – Cooperation Movement – Chirala Perala, Palanadu & Pandanadipadu Activities – Alluri Seetarama Raju & Rampa Revolt (1922 – 1924) – Anti Simon Commission Movement – Civil Disobedience Movement – Quit India Movement.
Unit – IV	Movement for Separate Andhra State (1953) : Causes – Andhra Maha Sabha – Andhra Provincial Congress Committee – Andhra University – Conflict between Coastal Andhra & Rayalaseema – Sri Bagh Pact – Constitution of Committees & their Contribution Martyrdom of Potti Sriramulu – Formation of separate Andhra State.
Unit – V	Movement for formation of Andhra Pradesh (1956) : Visalandhra Mahasabha – Role of Communists – States Reorganization Committee – Gentlemen's Agreement – Formation of Andhra Pradesh.

Reference :

1	B. Kesava Narayana, Political and Social Factors in Modern Andhra
2	K.V. Narayana Rao, The Emergence of Andhra Pradesh
3	M. Venkata Ranagaiah, The Freedom Struggle in Andhra Pradesh
4	P.R. Rao, History of Modern Andhra
5	Sarojini Regani, Highlights of Freedom Movement
6	Sarojini Regani
7	V. Ramakrishna, Social Reform Movement in Andhra.
8	B. Kesava Narayana, Modern Andhra & Hyderabad – 1858 – 1956 A.D., 2016

Project work : With the aim of understanding of techniques and methods of research and presentation, students should be encouraged to draft a report on local writers, struggles, human rights movements, different types of social discrimination etc.



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Semester – VI

Paper – VIII-A-3 (Cluster Elective Paper -3)

CONTEMPORARY HISTORY OF ANDHRA PRADESH (1956 – 2014)

Unit – I	Social – Economic Changes in Andhra Pradesh – River Project & Infrastructural Development – Education & Scientific Progress Regional Politics – Emergence of Telugu Desam Party.
Unit – II	Growth of Leftist Ideology – Marxist & Radical Literature – Naxalbari Movement – Communist Activities – Electoral Politics – Present Status of Communist Movement.
Unit – III	Dalit Movement – Understanding Untouchability – Education – Literature – Struggle for Identity – Demand for Political Space.
Unit – IV	Early trends towards Bifurcation : Jai Telangana Movement (1969) – Mulki Rules – Legal Battle – Jai Andhra Movement (1972) – Six Point Formula (1973).
Unit – V	Bifurcation of Andhra Pradesh : Power Politics – Economic Discontentment – Riparian Disputes – Unemployment – Foundation of Telangana Rastrasamiti – Movement for Separate Telangana & unified Andhra Pradesh – Formation of Telangana State(2014)

Reference :

1	Barry Pavier, The Telangana Movement – 1944-51
2	Chinnayya Suri Agrarian Movement in Andhra, 1921-71
3	K. Ramachandra Murthy, Unveiling Telangana State
4	P.R. Rao, History of Modern Andhra
5	S. Ratnakar, A Brief History of Telangana & Andhra Pradesh
6	Sri Krishna Committee Report
7	Tarimela Nagireddy, India Mortgaged
8	Y.V. Krishna Rao, Growth of Capitalism in Indian Agriculture : A Case Study of A.P.
9	Katti Padma Rao
10	News Paper Clippings (2001-2014)

Project work : Students may be asked to prepare assignments on local caste struggles; regional disparities; aspirations; recent development etc. through interviews and verifying press reports.

KVR GOVT.COLLEGE FOR WOMEN(A),KURNOOL.

III B.A. CBCS w.e.f.2017-18

Semester –VI

Cluster Elective Paper-VIII-F 1 –Descriptive Economic Statistics

- Module-I** Nature and Scope of Statistics- Definitions, Role of Statistics in Modern Era- Importance and Limitations of Statistics.
- Module – II** Collection of Data – Primary Data-Methods of Collecting Primary data - Secondary Data –Sources of Secondary Data –.Census and sampling methods – merits and demerits.
- Module – III** Classification –Types of Classification- Tabulation – Types of Tabulation – Preparation of Frequency Distribution Table.
- Module – IV** Diagrammatic representation of data-Importance of Diagrams- types of Diagrams - Simple Bar Diagram –Pie Diagram –
- Module – V** Graphical representation of data- Histogram – Frequency Polygon – Frequency Curves and Ogives.

Reference Books:

1. Statistical Methods by S.P.Gupta
2. Fundamentals of Statistics by D.N.Elanhance
3. Quantitative Techniques by R.K.Sharma Kalyani Publishers
4. Quantitative Techniques by Jothirmayee Himalaya Publishers
5. Quantitative Techniques by Subrayudu Jai Bharat Publishers, Guntur
6. Statistics by S.C.Gupta
7. Business Statistics by S.P.Gupta & M.P.Gupta
8. Statistics an Introductory Analysis by Taro Yamane
9. Fundamentals of Mathematical Statistics by S.C.Gupta & V.K.Kapoor
10. Telugu Academy Books

KVR GOVT.COLLEGE FOR WOMEN(A),KURNOOL.

III B.A. CBCS w.e.f.2017-18

Semester –VI

Cluster Elective Paper-VIII-F 2 –Statistical Methods

- Module I** Measures of central Tendency- Introduction - Arithmetic Mean- Arithmetic Mean. Merits and Demerits.
- Module II** Median- Quartiles- Deciles and Percentiles-Mode - Merits and Demerits.
- Module III** Geometric Mean, - Harmonic Mean -Merits and Demerits.
- Module IV** Measures of Dispersion- Range- Quartile Deviation Merits and Demerits.
- Module V** Mean Deviation- Standard Deviation -Co efficient of Variation- Merits and Demerits

Reference Books:

1. Statistical Methods by S.P.Gupta
2. Fundamentals of Statistics by D.N.Elanhance
3. Quantitative Techniques by R.K.Sharma Kalyani Publishers
4. Quantitative Techniques by Jothirmayee Himalaya Publishers
5. Quantitative Techniques by Subrayudu Jai Bharat Publishers, Guntur
6. Statistics by S.C.Gupta
7. Business Statistics by S.P.Gupta & M.P.Gupta
8. Statistics an Introductory Analysis by Taro Yamane
9. Fundamentals of Mathematical Statistics by S.C.Gupta & V.K.Kapoor
10. Telugu Academy Books

KVR GOVT.COLLEGE FOR WOMEN(A),KURNOOL.

III B.A. CBCS w.e.f.2017-18

Semester –VI

Cluster Elective Paper-VIII-F 3 –Statistical Techniques

- Module I** Skewness- Karl Pearson's and Bowley's Measures of Skewness- Kurtosis – concept and meaning.
- Module II** Correlation - Simple Correlation Karl Pearson's Correlation- Spearman's Rank Correlation.
- Module III** Regression Analysis- Estimation of Regression lines of Y ON X & X on Y.
- Module IV** Analysis of Time series- Determination of Trend, Semi average- Moving average methods and Straight line Method.
- Module V** Index Numbers- Methods of Construction of Laspeyer's, Passchies and Fisher's Ideal Index Number -Time Reversal Test and Factor reversal Test.

Reference Books:

1. Statistical Methods by S.P.Gupta
2. Fundamentals of Statistics by D.N.Elanhance
3. Quantitative Techniques by R.K.Sharma Kalyani Publishers
4. Quantitative Techniques by Jothirmayee Himalaya Publishers
5. Quantitative Techniques by Subrayudu Jai Bharat Publishers, Guntur
6. Statistics by S.C.Gupta
7. Business Statistics by S.P.Gupta & M.P.Gupta
8. Statistics an Introductory Analysis by Taro Yamane
9. Fundamentals of Mathematical Statistics by S.C.Gupta & V.K.Kapoor
10. Telugu Academy Books

K.V.V. GOVERNMENT COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
CBCS: Syllabus - Semester Wise From 2017-18 as per APSCHE
III Year B.A. Political Science Semester – VI
Paper VIII-C-1 (Cluster Elective): INTERNATIONAL RELATIONS
(అంతర్జాతీయ సంబంధములు)

Unit- I: Basic Concepts of International Relations (అంతర్జాతీయ సంబంధాలు-మౌలిక భావనలు)

1. Meaning, Nature and Scope of International Relations
అంతర్జాతీయ సంబంధాలు - అర్థము, స్వభావము మరియు పరిధి
2. Approaches to the study of International Relations , Idealism --Classical Realism
అంతర్జాతీయ సంబంధములు - అధ్యయనా దృక్పథములు, ఆదర్శవాదము, సాంప్రదాయ వాస్తవికవాదము

Unit-II: Phases of International Relations (1914-1945)

(అంతర్జాతీయ సంబంధముల దశలు (1914-1945)

1. Causes for the First World War (మొదటి ప్రపంచ యుద్ధము - కారణాలు)
2. Causes for the Second World War (రెండవ ప్రపంచ యుద్ధము - కారణాలు)

Unit-III: Phases of International Relations (1945 onwards)

(అంతర్జాతీయ సంబంధముల దశలు (1945 తరువాత)

1. Origin of First Cold War (మొదటి ప్రచ్ఛన్న యుద్ధము మూలములు)
2. Origin and the End of Second Cold War (రెండవ ప్రచ్ఛన్న యుద్ధము మూలములు మరియు ముగింపు)

Unit-IV: International Organisation (అంతర్జాతీయ సంస్థలు)

1. The role of UNO in the protection of International Peace
(ప్రపంచ శాంతి పరిరక్షణ లో ఐక్య రాజ్య సమితి పాత్ర)
2. Problems of the Third World : Struggle for New International Economic Order
(మూడవ ప్రపంచ దేశముల సమస్యలు--నూతన ప్రపంచ ఆర్థిక వ్యవస్థ కోసం పోరాటం)

Reference Books:

1. Jackson, R and Sorensan Y, Introduction to International Relations; Theories and approaches, New York, OUP, 2008.
2. Baylis, J and Smith, S (Eds), The Globalization of World Politics; An Introduction to International Relations, Oxford, OUP, 2011
3. Aneek Chatterjee, International Relations Today; Concepts and Applications, New Delhi, Pearson Education, 2008.
4. E.H. Carr, International relations between the two world Wars, Lodon, Palgrave Macmillan, 2004.

K.V.R. Government College For Women (Autonomous), Kurnool
CBCS: Syllabus - Semester Wise (2017-18) As Per APSCHE
III YEAR B.A. Political Science VI- Semester
PAPER: VIII-C-2 (Cluster Elective): INDIAN FOREIGN POLICY
(భారత విదేశాంగ విధానం)

Unit- I: Evolution of Indian Foreign Policy

(భారత విదేశాంగ విధాన పరిణామము)

1. Determinants of Indian Foreign Policy(భారత విదేశాంగ విధాన నిర్ణయకాలు)
2. Continuity and change in Indian Foreign Policy(భారత విదేశాంగ విధానం కొనసాగింపు మరియు మార్పు)

Unit-II: Non-Alignment and UNO (అలీన ఉద్యమం మరియు ఐక్య రాజ్య సమితి)

1. Non-Alignment Movement—Role of India and relevance (అలీన ఉద్యమం --భారత దేశం పాత్ర మరియు అనుగుణ్యత)
2. Role of India in the UNO in protection of International Peace (ప్రపంచ శాంతి పరిరక్షణ లో ఐక్య రాజ్య సమితి లో భారత దేశ పాత్ర)

Unit-III: India's Relation with USA and China అమెరికా, చైనా దేశాలతో భారత దేశ సంబంధాలు)

1. Indo- US Relations: Pre- Cold War Era, Post- Cold War Era (భారత- అమెరిక సంబంధాలు- పూర్వ ప్రచ్ఛన్న యుద్ధ దశ – ప్రచ్ఛన్న యుద్ధ తదనంతర దశ
2. India – China Relations: Pre- Cold War Era, Post- Cold War Era (భారత- చైనా సంబంధాలు పూర్వ ప్రచ్ఛన్న యుద్ధ దశ – ప్రచ్ఛన్న యుద్ధ తదనంతర దశ

Unit-IV: India and her Neighbours (భారత దేశం మరియు దాని పొరుగు దేశాలు)

1. India's relations with SAARC countries (సార్క్ దేశాలతో భారత దేశ సంబంధాలు)
2. India's role in South Asian Association of Regions Cooperation (SAARC) (దక్షిణ ఆసియా ప్రాంతీయ సహకార సంస్థ లో భారత దేశం పాత్ర)

Reference Books:

1. David Scott (Ed), Handbook of India's International Relations, London, Routledge, 2011
2. Ganguly, S (Ed), India as an Emerging Power, Portland, Franck class, 2003
3. Pant, H, Contemporary Debates in Indian Foreign and Security Policy, London, Palgrave Macmillian, 2008
4. Tellis, A and Mirski, S (Eds), Crux of Asia; China, India, and the Emerging global Order, Washington, Carnegie endowment for international peace, 2013
5. Muni, S.D, India's Foreign Policy Delhi CUP, 2009
6. Alyssa Ayres and Raja Mohan, C (Eds), Power Realignment in Asia: China, India and the United States, New Delhi, Sage, 2002.
7. Appadorai, A, Domestic roots of Indian Foreign Policy, New Delhi, OUP, 1971 Dutt, V.P, India's Foreign Policy in a Changing World, New Delhi, NBT, 2011

K.V.R. GOVERNMENT COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
CBCS: SYLLABUS - SEMESTER WISE (2017-18) As per APSCHE
III YEAR B.A. Political Science SEMESTER – VI
PAPER: VIII-C-3 (Cluster Elective): CONTEMPORARY GLOBAL ISSUES (సమకాలీన ప్రపంచ
సమస్యలు)

Unit- I: Concept of Globalization (ప్రపంచీకరణ భావన)

1. Economic Concept of Globalization (ప్రపంచీకరణ - ఆర్థికభావన)
2. Political Concept of Globalization (ప్రపంచీకరణ - రాజకీయ భావన)

Unit-II: Anchors of Global Political Economy (ప్రపంచ రాజకీయ ఆర్థిక వ్యవస్థ ను స్తరీకరణ చేయు
వ్యవస్థలు)

1. International Monetary Fund , World Bank-Nature, Role and Functions (ఇ. యం. యఫ్. మరియు
ప్రపంచ బ్యాంకు-- వాటి స్వభావం, పాత్ర, విధులు)
2. World Trade Organization: Origin, Nature and role in the context of Globalization (ప్రపంచ వాణిజ్య
సంస్థ - ఆవిర్భావం, స్వభావం, ప్రపంచీకరణ నేపథ్యం లో దాని పాత్ర)

Unit-III: Nation State and Globalization (జాతి రాజ్యాలు మరియు ప్రపంచీకరణ)

1. The role of Nation State in the context of Globalization(ప్రపంచీకరణ నేపథ్యం లో జాతి రాజ్యాల పాత్ర)
2. Consequences of Globalization – Rise of Inequalities within and across Nations (ప్రపంచీకరణ
పరిణామాలు--దేశాల లో మరియు దేశాల మధ్య అసమానత ల పెరుగుదల)

Unit-IV: Contemporary Global issues (సమకాలీన ప్రపంచం లోని అంశాలు)

1. Ecological Issues: International Agreements On Climate Change (పర్యావరణ అంశాలు--వాతావరణ
మార్పు పై కుదిరిన ముఖ్యమైన అంతర్జాతీయ ఒప్పందాలు)
2. International Terrorism: Non- State Actors and State Terrorism (అంతర్జాతీయ ఉగ్రవాదం ప్రభుత్వ ,
ప్రభుత్వేతర సంస్థల ప్రేరేపిత అంతర్జాతీయ ఉగ్రవాదం)

Reference Books:

1. Ritzer, G., Globalization: A Basic Text, Sussex: Wiley- Black well, 2009
2. Streger, M., Globalization: A Very Short Introduction, Oxford, OUP, 2013
3. Heywood, A., Global Politics, New York, Palgrave Macmillian, 2011
4. Held, D et.al, Global Transformations; Politics, Economics and culture California, Stanford
University Press, 1999 J. Volger, 'Environmental Issues' in J. Baylis, S. Smith and Owens, P (Ed)
Globalization of world politics, New York, P

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Re-Accredited by NAAC with Grade "A".

Syllabus for B.A. Urdu CBCS 2017-18

As per Andhra Pradesh State Council of Higher Education

Thirdyear Paper - VIII (Cluster Elective- 1)

SEMESTER – VI

UNIT – I ZARAY-E- IBLAG

UNIT – II SAHAFATH

UNIT – III KHABREIN

UNIT – IV RISALE - MAHNAME

UNIT – V BARQEE SAHAFATH

- a) Radio**
- b) Television**
- c) Internet**

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As per Andhra Pradesh State Council of Higher Education

Third year Paper - VIII (Cluster Elective- 2)

SEMESTER – VI

UNIT – I ISM (NOUN)

UNIT – II SIFATH (ADJECTIVE)

UNIT – III FEYL (VERB)

UNIT – IV JUMLE (SENTENCE)

UNIT – V ILM-E-BAYAN KI SHAKLEIN

- a) Tashbih**
- b) Isteaarah**
- c) Kinaya**

KVR Govt. College (w) Autonomous Kurnool.

Syllabus for B.A. Urdu CBCS 2017-18

As per Andhra Pradesh State Council of Higher Education

Thirdyear

Paper - VIII (Cluster Elective-3)

SEMESTER – VI

UNIT – I TARJUMA NIGARI: TareefaurFunn

UNIT – II TARJUMA NIGARI: Ahmiyat-o- Ifadiyath

UNIT – III TARJUMA KE AQSAM

UNIT – IV MUTRAJUM KE FARAIZ

UNIT – V TARJUME KE NAMUNE

ANNEXURE – VIII

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL

Re-Accredited by NAAC with Grade "A"

CHOICE BASED CREDIT SYSTEM (w.e.f. 2017-18)

B.A(CA&CE) Three-Year Degree Course (Semester Wise)

Syllabus for IIIrd Year – VIth Semester.

Part – II : COMPUTER APPLICATIONS

(Cluster)Paper VIII: Elective- 1: Cloud Computing

No. of Hours Per Week : 03

Max. Marks: 75.

Unit 1

Cloud Computing Overview – Origins of Cloud computing – Cloud components - Essential characteristics – On-demand self-service, Broad network access, Location independent resource pooling, Rapid elasticity, Measured service

Unit II

Cloud scenarios – Benefits: scalability, simplicity, vendors, security. Limitations – Sensitive information - Application development – Security concerns - privacy concern with a third party - security level of third party - security benefits Regularity issues: Government policies

Unit III

Cloud architecture: Cloud delivery model – SPI framework , SPI evolution, SPI vs. traditional IT Model

Software as a Service (SaaS): SaaS service providers – Google App Engine, Salesforce.com and google platform – Benefits – Operational benefits - Economic benefits – Evaluating SaaS

Platform as a Service (PaaS): PaaS service providers – Right Scale – Salesforce.com – Rackspace – Force.com – Services and Benefits

Unit IV

Infrastructure as a Service (IaaS): IaaS service providers – Amazon EC2, GoGrid – Microsoft soft implementation and support – Amazon EC service level agreement – Recent developments – Benefits Cloud deployment model : Public clouds – Private clouds – Community clouds - Hybrid clouds - Advantages of Cloud computing

Unit V

Virtualization: Virtualization and cloud computing - Need of virtualization – cost, administration, fast deployment, reduce infrastructure cost – limitations - Types of hardware virtualization: Full virtualization - partial virtualization - para virtualization - Desktop virtualization: Software virtualization – Memory virtualization - Storage virtualization – Data virtualization – Network virtualization Microsoft Implementation: Microsoft Hyper V – VMware features and infrastructure – Virtual Box - Thin client

Reference Books

1. Cloud computing a practical approach - Anthony T.Velte , Toby J. Velte, Robert Elsenpeter TATA McGraw- Hill , New Delhi – 2010
2. Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online - Michael Miller - Que 2008
3. Cloud Computing, Theory and Practice, Dan C Marinescu, MK Elsevier
4. Cloud Computing, A Hands on approach, Arshadeep Bahga, Vijay Madisetti, University Press

5. Mastering Cloud Computing, Foundations and Application Programming, Raj Kumar Buyya, Christenvecctiola, S Tammarai selvi, TMH

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CHOICE BASED CREDIT SYSTEM (w.e.f. 2017-18)

B.A(CA&CE) Three-Year Degree Course (Semester Wise)

Syllabus for IIIrd Year – VIth Semester.

Part – II : COMPUTER APPLICATIONS

(Cluster)Paper VIII: Elective-2: e- Commerce

No. of Hours Per Week : 03

Max. Marks: 75.

Unit-I: Introduction to E-Commerce: Scope, Definition, e-Commerce and the Trade Cycle, Electronic Markets, Electronic Data Interchange, Internet Commerce. Business Strategy in an Electronic Age: Supply Chains, Porter's Value Chain Model, Inter Organizational Value Chains, Competitive Strategy, First Mover Advantage - Sustainable Competitive Advantage, Competitive Advantage using E-Commerce - Business Strategy.

Unit-II: Business-to-Business Electronic Commerce: Characteristics of B2B EC, Models of B2B EC, Procurement Management by using the Buyer's Internal Market place, Just in Time Delivery, Other B2B Models, Auctions and Services from traditional to Internet Based EDI, Integration with Back-end Information System, Role of Software Agents for B2B EC, Electronic marketing in B2B, Solutions of B2B EC, Managerial Issues, Electronic Data Interchange (EDI), EDI: Nuts and Bolts, EDI and Business.

Unit-III: Internet and Extranet : Automotive Network Exchange, Largest Extranet, Architecture of the Internet, Intranet and Extranet, Intranet software, Applications of Intranets, Intranet Application Case Studies, Considerations in Intranet Deployment, Extranets, Structures of Extranets, Extranet products and services, Applications of Extranets, Business Models of Extranet Applications, Managerial Issues. Electronic Payment Systems: Issues and Challenges.

Unit-IV: Public Policy: From Legal Issues to Privacy : Legal Incidents, Ethical and Other Public Policy Issues, Protecting Privacy, Protecting Intellectual Property, Free speech, Internet Indecency and Censorship, Taxation and Encryption Policies, Other Legal Issues: Contracts, Gambling and More, Consumer and Seller Protection in EC.

Unit-V: Infrastructure For EC : Network of Networks, Internet Protocols, Web- Based client/Server, Internet Security, Selling on the Web, Chatting on the Web, Multimedia delivery, Analyzing Web Visits, Managerial Issues, Equipment required for establishing EC Sites – Problems in Operation – Future of EC.

Reference Books

1. David Whiteley, "E-Commerce", Tata McGraw Hill, 2000.
2. E Business by Parag Kulakarni and Sunitha Jahirabadkar from Oxford University Press.
3. E Business by Jonathan Reynolds from Oxford University Press.
4. Eframi Turban, Jae Lee, David King, K. Michael Chung, "Electronic Commerce", Pearson Education, 2000.
5. R. Kalakota and A. B. Whinston, Frontiers of Electronic Commerce, Addison Wesley.
6. David Kosiur, Understanding Electronic Commerce, Microsoft Press.
7. Soka, From EDI to Electronic Commerce, McGraw Hill.

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
CHOICE BASED CREDIT SYSTEM (w.e.f. 2017-18)
B.A(CA&CE) Three-Year Degree Course (Semester Wise)
Syllabus for IIIrd Year – VIth Semester.

Part – II : COMPUTER APPLICATIONS

(Cluster)Paper VIII:Elective-3 : Unix

No. of Hours Per Week : 03

Max. Marks: 75.

Unit I

Overview of UNIX Operating System, basic features of Unix operating System, File Structure, CPU Scheduling, Memory Management, File System Implementation of Operating System Functions in UNIX.

Unit II

Starting Of Unix and Text Manipulation and user-to-user communication User Names and Groups, Logging In, Format of Unix Commands, Changing your password, Unix Documentation.

Unit III

Files and Directories:, File permission, Basic Operation on Files, Changing Permission Modes, Standard files , Processes Inspecting Files, Operating On Files, Printing Files, Rearranging Files, Sorting Files, Splitting Files, Translating Characters, On line communication, Off line communication.

Unit IV

vi Editors-General characteristics, Adding text and Navigation, changing text, searching for text, copying and Moving text, Features of Ex, Line Editors Ex and Ed, Stream editor SED, changing several file s in SED, AWK.

Unit V

Shell Programming: Programming in the Bourne and C-Shell, Wild Cards, Simple Shell program, variables, Programming Construct, Interactive Shell scripts, Advanced Features, Unix Compiler, Maintaining program System Administration Define system Administration, Booting the system, Maintaining User Accounts, File System, and special files, Backup and Restoration.

References Books:

1. Unix and shell Programming by B.M Harwani, OXFORD University Press
2. Unix Concept and application- Sumitabhadas
3. Unix Shell Programming-Yashwant Kanetkar
4. Unix Programming Environment- RobPike
5. Unix in a Nutshell- Donill Gily

KVR GOVT COLLEGE FOR WOMEN, KURNOOL
(AUTONOMOUS)

(Effective from 2015-2018 Batch)
III YEAR B.A. COMMUNICATIVE ENGLISH

SEMESTER-VI

CLUSTER ELECTIVE PAPER-I : EMPLOYABILITY SKILLS

SYLLABUS

UNIT-I: RESUME

- Introduction
- Types of Resume
- DO'S and Dont's
- Covering Letter

UNIT-II: STRESS MANAGEMENT

- Sources of stress
- Causes of stress
- Types of stress
- Tips for Stress Management

UNIT-III: TEAM WORK

- Introduction
- Characteristics / skills
- Advantages
- Role of team leader and team members

UNIT-IV: INTERVIEW SKILLS

- Introduction
- Types of Interviews
- Techniques/Tips
- Mock Interviews

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SYLLABUS FOR PAPER-II(UNDER CLUSTER).ELECTIVE)

LISTENING AND SPEAKING SKILLS.

VI SEMESTER

CHAPTER I - 1) What is listening?

2) Types of listening.

a) Passive Listening

b) Marginal listening

c) Projecting Listening.

d) Sensitive/Empathetic Listening e)Active Listening

CHAPTER- II. a) Barriers of effective listening.

b) Techniques to overcome Listening Obstacles.

CHAPTER- III. Activities of Listening.

a) Listening to TV.

b) Listening to Seminars

c) Listening to announcements at Railway Station/Bus station etc

d) Listening to great personalities speeches in the form CD's.

e) Make announcements about missing cases.

CHAPTER- IV .Dialogue Practice - Activity in the Classroom.

CHAPTER -V. Speaking Skills.

a) Introducing Yourself

b) Seeking permission

c) Refusing Requests.

d) Accepting and Declining Invitations in a polite way.

e) Role play

f) Group Discussions.

KVR GOVT. COLLEGE FOR WOMEN (A), KURNOOL.
SYLLABUS FOR PAPER-III (UNDER CLUSTER . ELECTIVE) 3
B.A. III YEAR COMMUNICATIVE ENGLISH
SEMESTER - IV
READING AND WRITING SKILLS.

(LANGUAGE SPECIFIC COURSE)

CHAPTER- I: Reading Skills.

- a) Purpose of Reading
- b) Goals of Reading
- c) Before Reading
- d) During Reading
- e) After Reading.

CHAPTER -II. Reading Comprehension.

- a) What are the tips for Reading Comprehension?
- b) Reading the passage and making answers.

CHAPTER -III. Techniques of Reading Skills.

- a) Skimming
- b) Scanning
- c) Intensive Reading
- d) Extensive Reading

CHAPTER- IV. Writing Skills.

- a) punctuation in writing
- b) Format of a Notice.
- c) Composing Invitations.

CHAPTER-V. Cohesive Devices/Linkers

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III B.Sc., SEMESTER – VI

CLUSTER ELECTIVE: PAPER – VIII- A: PLANT DIVERSITY AND HUMAN WELFARE

Unit- I: Plant diversity and its scope: (12hrs)

- i. Genetic diversity, Species diversity, Plant diversity at the ecosystem level, Agro biodiversity and cultivated and wild plants
- ii. Values and potentialities of biodiversity: Ethical and aesthetic values, and Methodologies for valuation,
- iii. Ecological, habit and geographical relations

Unit -II: Loss of biodiversity: (12hrs)

- i. Loss of genetic diversity, Loss of species diversity, Loss of ecosystem diversity, Loss of agro biodiversity, projected scenario for biodiversity loss
- ii. Management of plant biodiversity: Organizations associated with biodiversity management-Methodology for execution-IUCN, UNEP, UNESCO, WWF, NBPGR;
- iii. Biodiversity legislation and conservations, Biodiversity information management and communication.

Unit-III: Contemporary practices in resource management: (12hrs)

- i. Environmental Impact Assessment (EIA): purpose and benefits, EIA process, areas of human concern (impact categories)
- ii. Geographical Information System GIS,
- iii. Brief account on Participatory resource appraisal, carbon footprint, Resource accounting;
- iv. Solid and liquid waste management: Types, Environmental and health impact, waste management

Unit -IV: Conservation of biodiversity (12hrs)

- i. Conservation of Biodiversity: Types, In situ and ex situ conservation,
- ii. Biosphere reserves, Endemism, Red data book, RET species, Sacred grooves
- iii. Social approaches to conservation, Biodiversity awareness programmes, Sustainable development.

Unit- V: Role of plants in relation to Human Welfare (12hrs)

- i. Importance potentialities of forests with reference to Andhra Pradesh state: Wood, fiber, gums and resins.
- ii. Aromatic plants and Food yielding plants- millets, spices and condiments
- iii. Microbes in human welfare: Household products, Industrial products, Biofertilizers

Suggested Readings:

1. Krishnamurthy, K.V. (2004). An Advanced Text Book of Biodiversity - Principles and Practices. Oxford and IBH Publications Co. Pvt. Ltd. New Delhi.
2. Singh, J. S., Singh, S.P. and Gupta, S. (2006). Ecology, Environment and Resource Conservation. Anamaya Publications, New Delhi.
3. Rogers, P.P., Jalal, K.F. and Boyd, J.A. (2008). An Introduction to Sustainable Development. Prentice Hall of India Private Limited, New Delhi.

Suggested activities: Study of flora and its diversity in the college campus or local area, enumerating wild and exotic species (Parthenium, Water hyacinth etc.)

Project work on any one of the International organizations striving for preservation of biodiversity, study of conservation efforts of local people, and civic bodies, study of locally available fruits in different seasons, enumerating the avenue plantations and their diversity in your town/city

K.V.R. Govt. COLLEGE FOR WOMEN {AUTONOMOUS}, KURNOOL

III B.Sc., SEMESTER – VI

CLUSTER ELECTIVE: PAPER – VIII-B: ETHANOBOTANY AND MEDICINAL BOTANY

Unit –I: Ethanobotany (12hrs)

- i. Introduction, concept, scope and objectives; Ethno botany as an Interdisciplinary science. The relevance of ethanobotany in the present context
- ii. Major and minor ethnic groups of Tribals in India, and their dependence on their surrounding plant resources
- iii. Plants used by the tribal populations: a) Food plants, b) Intoxicants and beverages, c) Gums, Resins and oils.

Unit -II: Role of ethnobotany in modern Medicine: (12hrs)

- i. Role of ethnobotany in modern medicine with special reference to *Rauvolfia serpentina*, *Trichopus zeylanicus*, *Artemisia annua*, *Withania somnifera*.
- ii. Medico-ethnobotanical sources in India
- iii. Significance of the following plants in ethnobotanical practices (with their habitat and morphology) :a) *Azadirachta indica*, b) *sanctum*, c) *Vitex negundo*, d) *Gloriosa superba*, e) *Tribulus terrestris* f) *Phyllanthus amarus* , g) *Cassia auriculata*, h) *Indigofera tinctoria* , i) *Senna auriculata* j). *Curcuma longa*.

Unit-III: Ethnobotany as a tool to protect interests of ethnic groups (12hrs)

- i. Sharing of wealth concept with reference to medicinal plants *Arogyapaccha*, *Memoryplus* and *Taxol*
- ii. Biopiracy, Intellectual Property Rights and Traditional Botanical(TBK) Knowledge.
- iii. Role of ethnic groups in the conservation of plant genetic resources

Unit -IV:History,Scope and Importance of Medicinal Plants. indigenous Medicinal Sciences (12hrs)

- i. Definition and Scope-AYUSH;**Ayurveda**: History, origin development panchamahabhutas, saptadhatu and tridosha concepts, Rasayana, plants used in ayurvedic treatments.
- ii. **Siddha**: Origin of Siddha system, Basis of Siddha system, plants in Siddha medicine.
- iii. Unani: History, concept: Umoor-e- tabiya, tumors treatments and therapy, polyherbal formulations (in brief).

Unit -V: Conservation of endangered and endemic medicinal plants: (12hrs)

- i. Definition: Aims and objectives of conservation; Rare, endemic and endangered medicinal plants,
- ii. Red list criteria
- iii. In situ conservation: sacred groves, National Parks
- iv. Ex situ conservation: Botanical Gardens.

Suggested Activities: Studying plant utilization methods by tribal/rural/migrant populations for their beverages, food, medicinal and uses, seminars on role of ethnic groups in conservation of plant genetic resources, project work on traditional knowledge about plant medicines, study of indigenous medicinal sciences and their efficacy.

Suggested Readings:

- 1) S.K. Jain, Manual of Ethnobotany, Scientific Publishers, Jodhpur, 1995.
- 2) Glimpses of Indian. Ethnobotny, Oxford and I B H, New Delhi – 1981.
- 3) S.K. Jain (ed.) 1989. Methods and approaches in ethnobotany. Society of ethnobotanists, Lucknow, India.
- 4) S.K. Jain, 1990. Contributions of Indian ethnobotny. Scientific publishers, Jodhpur.
- 5) Colton C.M. 1997. Ethnobotany – Principles and applications. John Wiley and sons – Chichester
- 6) Rama Ro, N and A.N. Henry (1996). The Ethnobotany of Eastern Ghats in Andhra Pradesh, India. Botanical Survey of India. Howrah.
7. Trivedi P C, 2006. Medicinal Plants: Ethnobotanical Approach, Agrobios, India.
8. Purohit and Vyas, 2008. Medicinal Plant Cultivation: A Scientific Approach, 2nd edn. Agrobios, India.
- 9 Pal, D.C. & Jain, S.K., 1998. Tribal Medicine. Naya Prakash Publishers, Calcutta
10. Raychudhuri, S.P., 1991. (Ed.) Recent advances in Medicinal aromatic and spice crops.

**CLUSTER ELECTIVE: PAPER – VIII-C: PHARMACOGNOSY AND
PHYTOCHEMISTRY**

Unit-I: Pharmacognosy (12hrs)

- i. Definition, Importance, Chemical, Morphological and pharmacological classification of drugs
- ii. Drug evaluation methods: Organoleptic and microscopic studies with reference to nature of active principles and common adulterants of *Alstonia scholaris* (bark), *Adhatoda vasica* (leaf), *Strychnos nuxvomica* (seed), *Rauwolfia serpentina* (root) and *Zinziber officinalis*, *Catharanthus roseus*.

Unit-II: Secondary Metabolites: (12hrs)

- i. Definition, Differences between primary secondary and metabolites, major types - terpenes, phenolics, alkaloids, terpenoids, steroids.
- ii. Principles of extraction with reference to Alkaloids. Origin secondary metabolites – detailed account of acetate pathway, mevalonate pathway, shikimate pathway.

UNIT-IV: Phytochemicals in Medicine: Natural Plant Phenols (12hrs)

- i. Simple Phenols and Phenolic compounds: chemistry and distribution, Benzoic acid derivatives and Cinnamic acid derivatives, isolation techniques in brief
- ii. Chemistry, distribution and chemical tests for Tannins, Quinones, Flavonoids
- iii. Chemistry and distribution of Anthocyanins and Anthocyanidin; Xanthone and stilbenes
- iv. Phenols in human health

UNIT-IV: Phytochemicals in Medicine: Biosynthesis and sources of drugs: (12hrs)

- i Steroids, sterols, saponins, withanolides, ecdysones, cucurbitacins: Biosynthesis, commercial importance.
- ii Alkaloids: Different groups, biosynthesis and bioactivity.
- iii. Volatile oils.

UNIT-V: Enzymes, proteins and amino acids as drugs: (12 hrs)

- i. Vaccines, toxins and toxoids, antitoxins, immune globulins, antiserums,
- ii. Antibiotics – chemical nature, mode of action: Penicillin, treptomycin, Erythromycin Pharmacological action of plant drugs – tumor inhibitors, PAF antagonists, antioxidants, phytoestrogens and others.

Suggested Activities: Isolation techniques of active principles from various parts of popular medicinal plants, debates on the efficacy of plant medicines and palliative cure, volatile oils from plants-extraction methods, project work on crude drugs

BOOKS FOR REFERENCE:

1. Wallis, T. E. 1946. Text book of Pharmacognosy, J & A Churchill Ltd.
2. Roseline, A. 2011. Pharmacognosy. MJP Publishers, Chennai.
3. Gurdeep Chatwal, 1980. Organic chemistry of natural productis.
4. Vol.I.Himalaya Publishing house.
5. Kalsi, P. S. and Jagtap, S., 2012. Pharmaceutical medicinal and natural product chemistry
6. N.K. Mehra . Narosa Publishing House Pvt. Ltd. New Delhi.
7. Agarwal, O. P. 2002. Organic chemistry–Chemistry of organic natural
a. Products. Vol. II. Goel publishing house, Meerut.
8. Harborne, J. B. 1998. Phytochemical methods –a guide to modern techniques of plant analysis 3 rd edition, Chapman and Hall
9. Datta & Mukerji, 1952. Pharmacognosy of Indian roots of Rhizome drugs. Bulletin No.1 Ministry of Health, Govt. of India.

III B.Sc., SEMESTER – VI

CLUSTER ELECTIVE: PAPER – VIII- A: PLANT DIVERSITY AND HUMAN WELFARE

Practical List

1. Study of plant diversity (flowering plants)
2. Study of exotic species identification and Morphological characteristics
3. Identification forest trees through bark, wood, flowers, leaves and fruits
4. Maceration, study of wood
5. Methods of preservation and canning of fruits
6. Visit to the local Ecosystem to study the plants
7. Write up on the conservation efforts of International Organizations
8. Study of solid and liquid waste management systems in rural/urban areas.

III B.Sc., SEMESTER – VI

CLUSTER ELECTIVE: PAPER – VIII-B: ETHANOBOTANY AND MEDICINAL BOTANY

Practical List

1. *Rauvolfia serpentina*, *Trichopus zeylanicus*, *Artemisia Annua*, *Withania* plants which are used as Ethanobotanical specimens
2. *Azadirachta indica*, *Ocimum sanctum*, *Vitex negundo*, *Phyllanthus amarus*, *Cassia auriculata*, Morphological medicinal importance of these plants
3. Field visits to identify and collect ethnomedicinal plants used by local tribes

III B.Sc., SEMESTER – VI

CLUSTER ELECTIVE: PAPER – VIII-C: PHARMACOGNOSY AND PHYTOCHEMISTRY

Practical List

1. Physical and chemical tests for evaluation of un organized drugs – Asaphoetida, Honey, Castor oil ,

Acacia

2. Identification of bark drugs – Cinchona, Cinnamom

3. Identification of fruit drugs – Cardamom, Coriander

4. Identification of Root and Rhizome drugs – Ginger , Garlic, Turmeric

5. Identification of whole plant – Aloes, Vinca, Punarnava

6. Herbarium of 20 medicinal plants

7. Collection of 20 locally available crude drugs from local venders

KVR GOVT COLLEGE(W), KURNOOL
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NAAC RE- ACCREDITED 'A' GRADE
ZOOLOGY SYLLABUS FOR CLUSTER ELECTIVE –VIII-B:
VI SEMESTER
AQUACULTURE

Cluster Elective Paper: VIII-B-1
PRINCIPLES OF AQUACULTURE

Periods:60

Max.Marks:100

Unit – I

1.1 Introduction / Basics of Aquaculture

- 1.1.1 Definition, Significance and History of Aquaculture
- 1.1.2 Present status of Aquaculture – Global and National scenario
- 1.1.3 Major cultivable species for aquaculture: freshwater, brackish water and marine.
- 1.1.4 Criteria for the selection of species for culture

Unit – II

2.1 Types of Aquaculture

- 2.1.1 Freshwater, Brackish water and Marine
- 2.1.2 Concept of Monoculture, Polyculture, Composite culture, Monosex culture and Integrated fish farming

2.2 Culture systems

- 2.2.1 cages, pens, Raceways, and water recirculating systems

2.3 Culture practices

- 2.3.1 Traditional, extensive, intensive, cultures of fish.

Unit – III

3.1 Design and construction of aquafarms

- 3.1.1 Criteria for the selection of site for freshwater pond farms
- 3.1.2 Design and construction of fish farms

3.2 Seed resources

- 3.2.1 Natural seed resources and Procurement of seed for stocking: Carp

3.3 Nutrition and feeds

- 3.3.1 Nutritional requirements of a cultivable fish
- 3.3.2 Natural food and Artificial feeds and their importance in fish culture

Unit – IV

4.1 Management of carp culture ponds

- 4.1.1 Culture of Indian major carps: Pre-stocking management – Dewatering, drying, ploughing/desilting; Predators, weeds and algal blooms and their control, Liming and fertilization; Stocking management – Stocking density and stocking; Post-stocking management – Feeding, water quality, growth and health care; and Harvesting of ponds

Unit – V

5.1 Culture of shrimp (*Penaeus monodon*)

5.2 Culture of pearl oysters

5.3 Culture of ornamental fishes – Setting up and maintenance of aquarium; and breeding.

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NAAC RE- ACCREDITED 'A' GRADE
Cluster Elective Paper: VIII-B-2
AQUACULTURE MANAGEMENT

Periods : 60

Max.Marks : 100

Unit – I

1.1 Breeding and Hatchery Management

- 1.1.1 Bundh Breeding of carp
- 1.1.2 Induced breeding of carp by Hypophysation;
- 1.1.3 Use of synthetic hormones
- 1.1.4 Types of fish hatcheries; Hatchery management of Indian major carps

Unit – II

2.1 Water quality Management

- 2.1.1 Water quality and soil characteristics suitable for fish culture
- 2.1.2 Identification of oxygen depletion problems and control mechanisms in culture ponds
- 2.1.3 Aeration: Principles of aeration and Emergency aeration
- 2.1.4 Liming materials, Organic manures and Inorganic fertilizers commonly used and their implications in fish ponds

Unit – III

3.1 Feed Management

- 3.1.2 Supplementary feeds: Principal foods in artificial diets; Types of feeds; role of probiotics.
- 3.1.3 Feed formulation and manufacturing; Feed storage
- 3.1.4 Feeding strategies: Feeding devices, feeding schedules and ration size; Feed evaluation- feed conversion efficiencies and ratios

Unit – IV

4.1 Disease Management

- 4.1.1 Principles of disease diagnosis and health management;
- 4.1.2 Prophylaxis, Hygiene and Therapy of fish diseases
- 4.1.3 Fish immunization and vaccination
- 4.1.4 Etiology, Symptoms, prophylaxis and therapy of common fish diseases in fish ponds

Unit – V

5.1 Economics and Marketing

- 5.1.1 Principles of aquaculture economics – Capital costs, variable costs, cost-benefit analysis
- 5.1.2 Fish marketing methods in India; Basic concepts in demand and price analysis

5.2 Fisheries Extension

5.1.3 Fisheries Training and Education in India; Role of extension in community development.

REFERENCE BOOKS

1. Boyd CE. 1979. Water Quality in Warm Water Fish Ponds. Auburn University
2. Boyd, CE. 1982. Water Quality Management for Pond Fish Culture. Elsevier Sci. Publ. Co.
3. Chakraborty C & Sadhu AK. 2000. Biology Hatchery and Culture Technology of Tiger Prawn and Giant Freshwater Prawn. Daya Publ. House
4. Conroy CA and Herman RL. 1968. Text book of Fish Diseases. TFH (Great Britain) Ltd, England. Halver J & Hardy RW. 2002. Fish Nutrition. Academic Press.
6. Ian C. 1984. Marketing in Fisheries and Aquaculture. Fishing News Books.
7. ICAR. 2006. Handbook of Fisheries and Aquaculture. ICAR.
8. Jhingran VG. 2007. Fish and Fisheries of India. Hindustan Publishing Corporation, India.
9. Jhingran VG & Pullin RSV. 1985. Hatchery Manual for the Common, Chinese and Indian Major Carps. ICLARM, Philippines.
10. Kumar D. 1996. Aquaculture Extension Services Review: India. FAO Fisheries Circular No. 906, Rome.
11. Lavens P & Sorgeloos P. 1996. Manual on the Production and Use of Live Food for Aquaculture. FAO Fisheries Tech. Paper 361, FAO.
12. MPEDA. 1993. Handbook on Aqua Farming - Live Feed. Micro Algal Culture. MPEDA Publication
13. New MB. 1987. Feed and Feeding of Fish and Shrimp. A Manual on the Preparation and Preservation of Compound Feeds for Shrimp and Fish in Aquaculture. FAO – ADCP/REP/87/26
14. Pandian TJ, Strüssmann CA & Marian MP. 2005. Fish Genetics and Aquaculture Biotechnology. Science Publ.
15. Pilley, TVR & Dill, WMA. 1979. Advances in Aquaculture. Fishing News Books, Ltd. England.
16. Pillay TVR & Kutty MN. 2005. Aquaculture- Principles and Practices. Blackwell.
17. Ray GL. 2006. Extension, Communication and Management. 6th Ed. Kalyani Publ. Delhi.
18. Reddy PVGK, Ayyappan S, Thampy DM & Gopalakrishna 2005. Text Book of Fish Genetics and Biotechnol. ICAR
19. Reichenbach KH. 1965. Fish Pathology. TFH (Gt. Britain) Ltd, England.
20. Shang YC. 1990. Aquaculture Economic Analysis - An Introduction. World Aquaculture Society, USA.
21. Singh B. 2006. Marine Biotechnology and Aquaculture Development. Daya Publ. House
22. Stickney RR. 1979. Principles of Warm water Aquaculture. John-Wiley & sons Inc.
23. Swain P, Sahoo PK & Ayyappan S. 2005. Fish and Shellfish Immunology: An Introduction. Narendra Publ.
24. Thomas PC, Rath SC & Mohapatra KD. 2003. Breeding and Seed Production of Finfish and Shellfish. Daya Publ.

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NAAC RE- ACCREDITED 'A' GRADE
Cluster Elective Paper: VIII-B-3
POST HARVEST TECHNOLOGY

Periods : 60

Max.Marks : 100

Unit – I

1.1 Handling and Principles of fish Preservation

1.1.1 Handling of fresh fish, storage and transport of fresh fish, post mortem changes (rigor mortis and spoilage), spoilage in marine fish and freshwater fish.

1.1.2 Principles of preservation– cleaning, lowering of temperature, rising of temperature, denudation, use of salt, use of fish preservatives, exposure to low radiation of gamma rays.

Unit – II

2.1 Methods of fish Preservation

2.1.1 Traditional methods - sun drying, salt curing, pickling and smoking.

2.1.2 Advanced methods – chilling or icing, refrigerated sea water, freezing, canning, Irradiation and Accelerated Freeze drying (AFD).

Unit – III

3.1 Processing and preservation of fish and fish by-products

3.1.1 Fish products – fish minced meat, fish meal, fish oil, fish liquid (ensilage), fish protein concentrate, fish cake, fish sauce, fish salads, fish powder, pet food from trash fish, fish manure.

3.1.2 Fish by-products – fish glue, ising glass, pearl essence, shark fins, fish leather and fish maws.

3.2 Seaweed Products

3.2.1 Preparation of agar, algin and carrageen. Use of seaweeds as food for human consumption, disease treatment and preparation of therapeutic drugs.

Unit – IV

4.1 Sanitation and Quality control

4.2.1 Sanitation in processing plants - Environmental hygiene and Personal hygiene in processing plants.

4.2.2 Quality Control of fish and fishery products – pre-processing control, control during processing and control after processing.

4.2 Regulatory affairs in industries

Unit – V

5.1 Quality Assurance, Management and Certification

- 5.1.1 Seafood Quality Assurance and Systems: Good Manufacturing Practices (GMPs); Good Laboratory Practices (GLPs); Standard Operating Procedures (SOPs); Concept of Hazard Analysis and Critical Control Points (HACCP) in seafood safety.
- 5.1.2 National and International standards – ISO 9000: 2000 Series of Quality Assurance System, Codex Alimentarius

REFERENCE BOOKS

1. Balachandran KK. 2001. Post-harvest Technology of Fish and Fish Products. Daya Publ.
2. Bond, et al. 1971. Fish Inspection and Quality Control. Fishing News Books, England.
3. Clucas IJ. 1981. Fish Handling, Preservation and Processing in the Tropics. Parts I, II. FAO.
4. Gopakumar K. (Ed.). 2002. Text Book of Fish Processing Technology. ICAR.
5. Govindan, TK. 1985. Fish Processing Technology, Oxford-IBH.
6. Hall GM. (Ed). 1992. Fish Processing Technology. Blackie.
7. Huss HH, Jakobsen M & Liston J. 1991. Quality Assurance in the Fish Industry. Elsevier.
8. John DEV. 1985. Food Safety and Toxicity. CRC Press.
9. Krenzer R. 1971. Fish Inspection and Quality Control. Fishing News.
10. Larousse J & Brown BE. 1997. Food Canning Technology. Wiley VCH.
11. Nambudiri DD. 2006. Technology of Fishery Products. Fishing Chimes.
12. Regenssein JM & Regenssein CE. 1991. Introduction to Fish Technology. VanNostrand Reinhold.
13. Rudolf K. 1969. Freezing and Irradiation of Fish. Fishing News (Books).
14. Sen DP. 2005. Advances in Fish Processing Technology. Alli

KVR GOVT COLLEGE(W), KURNOOL
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NAAC RE- ACCREDITED 'A' GRADE
ZOOLOGY PRACTICAL SYLLABUS CLUSTER ELECTIVE PAPER: VIII-B
VI SEMESTER
AQUACULTURE

PRACTICAL: I

Periods : 24

Max.Marks : 50

Cultivable fishes

1. Identification and study of important cultivable and edible fishes - Any ten
2. Identification and study of important cultivable and edible crustaceans - Any five
3. Identification and study of common aquarium fishes – Any five
4. General description and recording biometric data of a given fish.

Diseases

1. Identification and study of fish and shrimp diseases - Using specimens / pictures
2. External examination of the diseased fish – diagnostic features and procedure.
3. Autopsy of fish – Examination of the internal organs.
4. Determination of dosages of chemicals and drugs for treating common diseases.

Pond Management

1. Water Quality -Determination of temperature, pH, salinity in the pond water sample;
Estimation of dissolved oxygen, free carbon dioxide, total alkalinity, total hardness, phosphates and nitrites.
2. Soil analysis – Determination of soil texture, pH, conductivity, available nitrogen, available phosphorus and organic carbon.
4. Identification and study of common zooplankton, aquatic insects and aquatic weeds-
Each 5

KVR GOVT COLLEGE(W), KURNOOL
(Autonomous)
NAAC RE- ACCREDITED 'A' GRADE
ZOOLOGY PRACTICAL SYLLABUS CLUSTER ELECTIVE PAPER: VIII-B
VI SEMESTER
AQUACULTURE
PRACTICAL - II

Periods :24

Max.Marks : 50

Nutrition

1. Identification and study of Live food organisms – Any five
2. Formulation and preparation of a balanced fish feed
3. Estimation of Proximate composition of aquaculture feeds – Proteins, carbohydrates, lipids, moisture, ash content.
4. Gut content analysis to study artificial and natural food intake.

Post harvest Technology

1. Evaluation of fish/ fishery products for organoleptic, chemical and microbial quality.
2. Preparation of dried, cured and fermented fish products, examination of salt, protein, moisture in dried / cured products, examination of spoilage of dried / cured fish products, marinades, pickles, sauce.
3. Preparation of isinglass, collagen and chitosan from shrimp and crab shell.
4. Developing flow charts and exercises in identification of hazards – preparation of hazard analysis worksheet, plan form and corrective action procedures in processing of fish.

PRACTICAL – III

Project Work

Visit to a fish breeding centre / fish farms and submit a project report

or

Visit to a feed manufacturing unit and submit a project report

or

Visit to a shrimp hatchery / shrimp farms and submit a project report

or

Visit to a shrimp processing unit and submit a project report

K.V.R. GOVERNMENT COLLEGE FOR WOMEN (A), KURNOOL
Cluster Elective –III
ORGANIC
PAPER – VIII-C-1 : ORGANIC SPECTROSCOPIC TECHNIQUES
45 hrs (3 h / w)

UNIT-I **10h**
NUCLEAR MAGNETIC RESONANCE SPECTROSCOPY

Nuclear spin, Principles of NMR-Classical and Quantum Mechanical methods. Instrumentation. Relaxation-spin-spin & spin lattice relaxation. Shielding constants, Chemical shifts, Shielding and Deshielding mechanism-Factors influencing Chemical shift. Spin-Spin interactions-AX, AX₂ and AB types. Vicinal, Geminal and Long range coupling- Factors influencing coupling constants.

UNIT – II **5h**

Spin decoupling, Deuterium exchange, Chemical shift reagents and Nuclear overhauser effect. Applications of NMR-1)Identification of Structural isomers, 2) Detection of H-bonding, 3) Detection of Aromaticity, 4) Distinction between Cis and Trans isomers. FT NMR and its Advantages.

UNIT-III **10h**

UV & VISIBLE SPECTROSCOPY

Electronic spectra of diatomic molecules. ultraviolet bands for carbonyl compounds, unsaturated carbonyl compounds, dienes, conjugated polyenes. Fieser-woodward rules for conjugated dienes and carbonyl compounds, ultraviolet spectra of aromatic and heterocyclic compounds. Steric effect in biphenyls.

Types of transitions, effect of solvent on electronic transitions, Chromophores, Auxochromes.

UNIT-IV **5h**

Electronic spectra of polyatomic molecules. Chemical analysis by Electronic Spectroscopy – Beer-Lambert's Law. Deviation from Beer's law. Quantitative determination of metal ions (Mn⁺², Fe⁺²).

UNIT-V **15h**

Mass Spectroscopy

Basic Principle, Molecular ion, Parent ion, fragment ions. Theory- formation of parent ions, representation of mass spectrum. Ionisation methods- EI, CI. Nitrogen rule, metastable ion, identification of (M+1),(M+2) base peaks, determination of molecular formula- eg: ethyl benzene, Acetophenone, n-butylamine, 1-propanal

REFERENCE BOOKS:

1. Electron Spin Resonance Elementary Theory and Practical Applications- John E. Wertz and James R. Bolton, Chapman and Hall, 1986.
2. Spectroscopic Identification of organic compounds – Silverstein, Basseler and Morrill.
3. Organic Spectroscopy- William Kemp.

K.V.R. GOVERNMENT COLLEGE FOR WOMEN (A), KURNOOL
Cluster Elective –III
ORGANIC
PAPER – VIII-C-2 : ADVANCED ORGANIC REACTIONS
45 hrs (3 h / w)

UNIT – I

ORGANIC PHOTOCHEMISTRY

Organic photochemistry : Molecular orbitals, carbonyl chromophore–triplet states, Jablonski diagram, inter–system crossing.

Photochemical reactions : (a) Photoreduction, mechanism, influence of temperature, solvent, structure of substrates on the course of photo reduction,.

UNIT – II

ORGANIC PHOTOCHEMISTRY

Norrish cleavages, type I : Mechanism, acyclic cyclic ketones, influence of sensitizer, photo Fries rearrangement. Norrish type II cleavage: Mechanism and stereochemistry, type II reactions of esters : 1: 2 diketones, photo decarboxylation, Di - π methane rearrangement, Decomposition of nitrites – Barton reaction.

UNIT – III

PROTECTING GROUPS AND ORGANIC REACTIONS

Principles of (1) Protection of alcohols – ether formation including silyl ethers – ester formation, (2) Protection of diols – acetal, ketal and carbonate formation, (3) Protection of carboxylic acids – ester formation, benzyl and t-butyl esters, (4) Protection of amines – acetylation, benzylation, benzyloxy carbonyl, triphenyl methyl groups (5) Protection of carbonyl groups – acetal, ketal, 1,2–glycols formation.

UNIT – IV

Synthetic reactions : The Shapiro reaction, Stork–enamine reaction. Use of dithioacetals – Umpolung, phase transfer catalysis – mechanisms and use of benzyl trialkyl ammonium halides. Wittig reaction.

UNIT –V : NEW SYNTHETIC REACTIONS

Baylis–Hillman reaction, RCM olefin metathesis, Grubb catalyst, Mitsunobu reaction, McMurray reaction, Heck reaction, Suzuki coupling and Sonogashira coupling, Ugi reaction, Click reaction.

Recommended Books

1. Molecular reactions and Photochemistry by Charles Dupey and O.L. Chapman.
2. Molecular Photochemistry by Turru.
3. Importance of antibonding orbitals by Jaffe and Orchin.
4. Text Book of Organic Chemistry by Cram, Hammett and Henrickson.

K.V.R. GOVERNMENT COLLEGE FOR WOMEN (A), KURNOOL
Cluster Elective –III
ORGANIC
PAPER – VIII-C-3 : PHARMACEUTICAL AND MEDICINAL CHEMISTRY
45 hrs (3 h / w)

UNIT-I

8h

Pharmaceutical chemistry Terminology: Pharmacy, Pharmacology, Pharmacophore, Pharmacodynamics, Pharmacokinetics (ADME, Receptors - brief treatment) Metabolites and Anti metabolites.

UNIT-II

Drugs:

8h

Nomenclature: Chemical name, Generic name and trade names with examples Classification: Classification based on structures and therapeutic activity with one example each, Administration of drugs

UNIT-III: Structure, therapeutic use, activity, dosage and adverse effects of the following drugs:

12h

- I. Antibiotics: Penicillin, Chloramphenicol, Streptomycin, Tetracycline
- II. Cardiovascular Drugs: Quinine, Methyldopa, Oxyprenolol, Atenolol
- III. Anti-microbials: Sulfamethoxazole

UNIT-IV: Structure, therapeutic use, activity, dosage and adverse effects of Commonly Used drugs:

8h

- 1. Antipyretics – Paracetamol, 2. Analgesics – Aspirin, 3. Anti-inflammatory drugs – Ibuprofen,
- 4. Diuretics – Frusemide (Lasix), 5. Anti diabetic drugs - Tolbutamide

UNIT-V

HIV-AIDS:

9h

Immunity - CD-4cells, CD-8cells, Retro virus, Replication in human body, Investigation available, prevention of AIDS, Drugs available - examples with structures: PIS: Indinavir (crixivan), Nelfinavir (Viracept).

List of Reference Books:

- 1. Medicinal Chemistry by Dr. B.V. Ramana
- 2. Synthetic Drugs by O.D. Tyagi & M. Yadav
- 3. Medicinal Chemistry by Ashutoshkar
- 4. Medicinal Chemistry by P. Parimoo
- 5. Pharmacology & Pharmacotherapeutics R.S. Satoshkar & S.D. Bhandenkar
- 6. Medicinal Chemistry by Kadametal P-I & P-II
- 7. European Pharmacopoeia

K.V.R. GOVERNMENT COLLEGE FOR WOMEN (A), KURNOOL
LABORATORY COURSE – VII

Practical Paper – VII-(A) (at the end of semester VI) 30hrs - 50M

1. Conductometric Redox titrations.
2. Conductometric Complexometric titrations
3. Identification of aminoacids by paper chromatography

LABORATORY COURSE – VIII

Practical Paper – VIII-C-1: (at the end of semester VI) 30 hrs (2 h / W)

Spectral Identification of Un-Known Organic Compounds by Interpretation of UV, IR, ^1H NMR, ^{13}C NMR Spectral Data

Note: A minimum of 10 representative examples should be studied

LABORATORY COURSE – VIII

Practical Paper – VIII-C-2 (at the end of semester VI) 30 hrs (2 h / W)

1. Preparation of Aspirin
2. Preparation of Paracetamol
3. Preparation of Acetanilide
4. Preparation of Barbituric Acid
5. Preparation of Phenyl Azo β -naphthol

VII-C-3 Practical:- Project Work

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL

Re-Accredited by NAAC with Grade "A"

Elective1. HSC.604. A. EARLY CHILDHOOD EDUCATION

Theory - 4lec / week

Practical -2hrs/week

External- 75marks

Internal-25 marks

Learning objectives

1. To enlighten students about need and importance of early childhood education.
2. To know about the requirement and activities of ECE to bring out all round development in children

Theory

Unit-I Education for preschool children

- Need and importance of preschool education,
- Objectives of preschool education.
- Types of preschools-Nursery, Kindergarten, Montessori, Anganwadi, Balwadi and Creches etc.

Unit-II Physical set up of a preschool

- Building, site and plan, building and equipment- indoor and outdoor equipment
- Staff and personnel- teacher, assistant, etc.
- Qualities of preschool teacher
- Records and reports maintained in a preschool

Unit-III Curriculum for the preschool -Major goals of a preschool curriculum

- Types of preschool curriculum-long term, short term, weekly and daily planning,
- Daily program--model program- importance of each activity in a day program (medical check-up, outdoor and indoor play, snack, rest, story, rhyme and creative activity)

Unit-III Play and play equipment for preschoolers

- Values of play
- Play activities for preschool children
- Selection and care of toys and play equipment.

Unit-V Home-school relations-significance, ways of developing home-school relations

- Parental participation in preschool programme
- PTA meeting and its importance

PRACTICAL

1. Observation and recording development of preschool child and teacher
2. Observational visit to Early Childhood Centers- anganwadi/ other schools
3. Planning activities using thematic approach for all round development of the child
4. Preparation of Teaching Aids
5. Participation in preschool
6. Preparation of resource file

REFERENCES

1. Jagannath Mohanthy and Bhagyadhar Mohanthy, 2000, "Early Childhood Care and Education", Deep and Deep Publications PVT limited, New Delhi p-p.1-4.
2. J.S.Grewel, 1984, "ECE, foundations and Practice", National Psychological Corporation, Agra, New Delhi,

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ELECTIVE-1.H.Sc. 604 (B). SOCIOLOGY

Theory - 4lec / week

External- 75marks

Internal-25 marks

Learning Objectives:

1. To develop an understanding of the society and its constitution and emerging problems

- Unit-I**
- Sociology – Definition, nature and importance
 - Its relation to other social sciences, sociology and history, sociology and economics, sociology and social psychology, sociology and political science, sociology and anthropology
 - Society – Definition,, nature, characteristics
 - Culture-Definition, nature, functions, and evolution of culture
- Unit-II**
- Socialization-Definition, factors of socialization, types, agents ,agencies and stages of socialization
- social process-meaning, classification of social process
- Unit-III**
- Social groups – Definition, classification and characteristics of social groups – primary & secondary groups, formal and non-formal groups, and in & out groups
- Unit-IV**
- Communities in India
- Village Community – Definition, Features ,Characteristics of Indian villages, changes in Indian rural life
 - Urban community –Definition, Features of urban community, factors contributing to growth of cities and major problems in cities
- Unit-V**
- Problems of women in Modern India - Increasing violence against women, Gender tion, Harassment of women at work place and exploitation of womene women in media, of female education, problems related women
- employment and unemployment
- B. Constitution of legislation in support of women's cause
- Awareness of women regarding their rights
 - Rights and protection given to women by the constitution of India
 - Strategies for the protection of women rights and rehabilitation of women

Reference :

1. RM. Sharma, Principles of Sociology, Media Promoters and publishers Pvt. Ltd., Bombay 1982.
2. Vijaya Vize Bhushan Sachdeva, Introduction to Sociology, Kitab Mahal Allahabad, 1970
3. G.R. Madan, Indian Social Problems Second Edition , Allied Publishers Pvt Ltd. 1973
4. Vidyabhushan sha, Text book of Sociology
5. K. Singh- Urban Sociology- Prakash and Kendra- Sivapur Road, Lucknow- 226020, 1992

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ELECTIVE-1HSC. 604 C. COMMUNITY DEVELOPMENT

Theory - 4 lec / week

External- 75marks

Practical - 2 hrs/week

Internal-25 marks

Learning objective: To create awareness about community living and plan developmental programme

Theory

Unit-I Community Development – Definition and Nature

- Areas of activities under Community Development
- Principles of Community Development

Unit-II Leadership – Qualities and role of leader, classification of leaders,

- Types of leadership, methods to identify leaders,
- Leadership styles, methods of training leaders for social Mobilization

Unit-III Program Planning & Evaluation

- Objectives and Principles of Program Planning in Extension
- Methods to find out felt and unfelt needs of the community
- Steps in Program Planning
- Evaluation – Definition, steps in evaluation process, SWOT analysis

Unit-IV Diffusion & Adoption

- Diffusion – Elements of diffusion, Characteristics of innovations
- Adoption – Stages of adoption of innovation, Adopter categories
- Participatory Rural Appraisal(PRA) – Principles, Techniques & Methods and Importance of PRA

Unit-V Development Programs in India

- Community Development Program, NES - National Extension Service, NDP – National Demonstration Program, T & V System, DWCRA, KVK, ICDS, IRDP, TRYSEM, NREGA , Youth Clubs

PRACTICALS

1. Visit to a community/ village to find out the socio economic needs of the people
2. Plan an activity to create awareness among women and children of community surveyed according to their needs and interest
3. Lecture cum group discussion and Method demonstration
4. Execute program in the community surveyed and evaluate performance
5. Community development- group project at the end of the year
6. Preparation and display of teaching aids, posters, charts, flash cards, Display of bulletin Board

REFERENCES

1. A guide book for anganwadi workers. Published by department of women & child development. Ministry of Human resource development. Government of India.
2. Ramala M. Basamusa Hema Subramanyam “Assistance for women’s development from national agencies – Employment programmes”
3. O.P. Dahamma “Extension and Rural welfare”, 1981. Ram Prasad and Sons Agra Bhopal.

III B.Sc., - BIOTECHNOLOGY SYLLABUS

SEMESTER–VI Cluster Electives

Cluster Elective –A

Paper VIII–A-1 Plant Biotechnology

UNIT I:

Plant Tissue culture – Historic perspective, Components of tissue culture medium- Organic Compounds, Inorganic nutrients, Growth hormones, Gelling agents; Stock solutions, Preparation of MS medium ; Physio-chemical conditions for propagation of plant cells and tissues; Cellular totipotency.

UNIT II:

In vitro Productions: Organ culture – Ovary , ovule , anther, and endosperm culture and their applications; Somatic embryogenesis ; Artificial seeds; Cybridization ; In vitro production of secondary metabolites – techniques and significance.

UNIT III:

Culture Techniques: Isolation of genes – Genomic and c DNA libraries; Gene construct ; Prokaryotic and Eukaryotic vectors; Gene transfer methods – Electroporation, Lipofection, Gene gun method and Agrobacterium mediated gene transfer ; Selection of transgenics – marker and reporter genes.

UNIT IV:

Plant Biotechnology in Agriculture: Role of plant tissue culture in Indian Agriculture – Herbicide resistant, Pest resistant, Stress resistant, Pathogen free plant etc. Transgenic crops with improved quality traits – Flavrsavr tomatoes, Golden rice, Quality oil , Edible vaccines

UNIT V:

Environmental and Industrial applications: Role of transgenic plants in degradation of pollutants- Phytoremediation- Phyto extraction, Phyto transformation, Phyto stabilization, Phyto stimulation.

Production of therapeutic products- Plantibodies, Vaccines, Somatotropin, Humilin.

Production of Industrial products – Enzymes (trypsin, cellulase, amylase) and Bioplastics.

III B.Sc., - BIOTECHNOLOGY SYLLABUS

SEMESTER–VI–ClusterElectives-A

Practical Paper VIII – A-1

Plant Biotechnology

1. Plant Tissue culture media preparation (MSmedia).
2. Single Cellisolation.
3. CallusInduction.
4. ProtoplastIsolation.
5. VAMstaining.
6. Synthetic seedproduction.
7. Antherculture.
8. Endospermculture.
9. Micropropagation.

- 10.Study of Genetic Engineering techniques from photographs(Bt Cotton, Golden rice, FlavrSavrtomatoes).

III B.Sc., - BIOTECHNOLOGY SYLLABUS

SEMESTER – VI Cluster Electives

Cluster Elective – A

Paper VIII – A-2

BTT: 501 - A-2 - Animal Tissue Culture.

UNIT I:

Introduction: Scope of Animal tissue culture, Culture media (Natural – Biological fluids, Tissue extract, embryo extract, Importance of serum in media, Chemical defined Media). Types of Cultures (Primary, Secondary or established Cultures) Animal cell line establishment (HAT selection).

UNIT II:

Culture Techniques: Transplantation of cultural cells, Expression of cloned protein in animal cell - Expression vectors, over production and down stream processing of expressed proteins. Production of Vaccine in animal cells, Production and applications of Monoclonal Antibodies, Transgenic animals, techniques & applications of transgenic sheep and mice.

UNIT III:

Based Biology of Stem cells: Stem cells – Introduction, Hematopoietic differentiation pathway, Potency and Plasticity of stem cells, sources, ESC, HSC, Mesenchymal stem cells, Stem cell markers, FACS analysis, Differentiation, Types and Source of stem cells – Embryonic, adult, Hematopoietic, fetal, cord blood, placenta, bone marrow, liver, neuronal, Primordial germ cells, Cancer Stem cells, induced to Pluripotent Stem cells.

UNIT IV:

Therapy for Animal Diseases: Recombinant cytokines and their use in the treatment of Animal infections, gene therapy for animal diseases, IVF and embryo transfer, Stem cell Therapy.

UNIT V:

Clinical applications and Tissue Engineering: Invitro Organogenesis, Molecular therapy, Gene therapy for diabetes, heart disease, Neurodegenerative diseases, Spinal cord injury; Tissue types, components & Basics of Tissue Engineering. Tissue repair and production of Tissue engineered Products.

III B.Sc., - BIOTECHNOLOGY SYLLABUS

SEMESTER – VI - Cluster Electives

Practical Paper VIII – A-2-2

BTP: 502 -2- A-2-2- Animal Tissue culture

1. Animal Tissue culture – virus cultivation.
2. Estimation of Hemoglobin by Wong's method.
3. Establishing primary cell culture of Chicken embryo fibroblast.
4. Embryo transfer technique Blastocyst culture.
5. Separation of serum from blood and precipitation of Immunoglobulin.
6. Immuno-electrophoresis of serum or any biological sample.
7. Isolation of liver Parenchyma cells.
8. Cryopreservation – Principles.
9. Sperm count and Sperm motility in rat.

III B.Sc., - BIOTECHNOLOGY SYLLABUS

SEMESTER – VI Cluster Electives

Cluster Elective – A

Paper VIII – A-3

BTT: 501 A-3 – Biosafety, Bioethics, IPR, Genetic counseling.

UNIT I:

Biosafety: Definition, historic evolution, Codes and guidelines, Universal Principles, Role of Institutional Biosafety committee. Review committee on genetic manipulations. Biosafety assessment for biotech foods and related products. LMO, GMO – Definitions; Assessment of pharmaceutical products like drugs / Vaccines etc.

UNIT II:

Bioethics: Bioethics – Introduction, Principles, Theories [Utilitarianism and deontology], Informed consent, Patient autonomy, Patient confidentiality, Paternalism and liberty; Applications of bioethical principles – Euthanasia, Abortion, determination of death biologically, IVF, stem cell technology; health ethics, Professional ethics.

UNIT III:

IPR: Importance of IPR, advantages of IP protection, relationship with trade, product / design patent. Types of IPR's, copyrights, trademarks, Trade secrets, Patents and Geographical indicators, Patents filing, Indian Patent Law, Worldwide Patent Protection.

UNIT IV:

Protection of Plant varieties: Plant varieties protection – Objectives, justification, international position, Plant varieties protection in India. Rights of farmers, breeders and Researchers. National gene bank, benefit sharing, Protection of Plant varieties.

UNIT V:

Genetic counseling: Introduction, definition of genetic counseling, Counseling regarding various prenatal diagnosis techniques, foetal counseling (amniocentesis, Cordocentesis), dysmorphology, learning common syndromes.

PRACTICALS

BTP: 502 A-3- Biosafety, Bioethics, IPR, Genetic counseling.

Project work –

1. Case studies in :

- a) Euthanasia b) Death & Dignity.
- c) A defense of Abortion. d) Ethical dilemma's.
- e) IVF f) Stem cell Cultures g) Clinical Death.
- h) Biopiracy cases (Neem patents)
- i) Prenatal diagnosis of genetic disorders.
- j) Pedigree analysis in disease conditions, risk calculations.

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BIOCHEMISTRY SYLLABUS FOR VI SEMESTER

Biochemistry Cluster Elective Paper: VIII-A-1 HAEMATOLOGY

Hours 60

Marks 100

Unit – I: Laboratory Preparation in Haematology:

Introduction to practical, Basic requirements. Collection of blood. Anticoagulants and effects of anticoagulants on blood cell morphology. Effects of storage of blood.

Unit – II: Routine Haematology:

Composition of blood. Haemoglobin synthesis. Various haemoglobins. Haemopoietic system of the body. Blood cell counts. Erythropoiesis. Leucopoiesis and development of blood corpuscles. Thrombopoiesis. Laboratory technique of haemocytometry. Clinical significance of Total erythrocyte count, total leucocyte count, differential count, erythrocyte sedimentation rate and platelet count.

Unit – III: Haemostasis and Haematological Diseases:

General consideration of blood coagulation. Mechanism of coagulation. Clinical significance of routine coagulation tests. Anaemia, Various types of anaemias – Iron deficiency anaemia, Aplastic anaemia, Pernicious anaemia, Sideroblastic anaemia and Sickle cell anaemia, Other haematological diseases – HDNB, Thalassaemia, Leukaemia.

Unit- IV: Automation in Haematology:

General considerations. Blood cell counters, Flow through cytochemical differential counter. Automated coagulated systems

Unit - V: Immunohaematology and Blood banking:

Human blood Group systems. Inheritance of blood group systems. Blood transfusion.

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BIOCHEMISTRY SYLLABUS FOR VI SEMESTER

Biochemistry Cluster Elective Paper: VIII-A-2 CLINICAL MICROBIOLOGY

Hours 60

Marks 100

Unit – I: Introduction to Clinical Microbiology:

Introduction to microbiology. Introduction to bacteriology. Classification of bacteria. Basic features of bacteria. Factors influencing the growth of bacteria. Morphology of bacteria. Pathogenic microorganisms.

Unit – II: Clinical Bacteriology Laboratory & Staining methods:

Requirements of a microbiological lab -safe disposal strategies. Safety practices to be followed in a microbiological laboratory. Sterilization and disinfection. Sterilization principles - autoclaving. Requirements in a microbiological lab. Microscopy. Automation in Bacteriology. Introduction to Staining. Gram Staining. Acid-Fast Staining. Capsule Staining. Transfer of bacteria.

Unit – III: Culturing of Microorganisms and Identification of Bacteria:

Composition of culture media. Different types of culture media. Preparation of culture media. Inoculation of culture media. Culturing of anaerobes and different types of culture media used. Identification of bacteria – staining reactions, cultural characteristics and biochemical properties. Study of Gram Negative Bacteria – Bacilli and Cocci. Study of Gram Positive Bacteria – Gram positive Cocci, Anaerobic bacteria, study of genus – Bacillus and Corynebacterium. Study of Mycobacteria, Spirochetes and Rickettsia.

Unit- IV: Clinical Mycology and Virology:

Basic morphological classification of clinically important fungi. Parasitic fungi –Superficial Mycoses and Dermatophytes, Subcutaneous Mycoses, Intermediate Superficial Deep Mycoses and Deep or Systemic mycoses. Some important viruses and related diseases Measles viruses, Influenza viruses, Rotaviruses, Polioviruses. Hepatitis viruses.

Unit - V: Diagnostic Serology:

General view of immune system. Antibodies. Harmful effect of immunity. Autoimmune diseases. Principles of Serodiagnostic tests - Flocculation test, Agglutination test, Slide agglutination test, Tube agglutination test, Complement test, Micro titration test, Precipitin test and ELISA

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BIOCHEMISTRY SYLLABUS FOR VI SEMESTER

Biochemistry Cluster Elective Paper: VIII-A-3

BIOCHEMICAL CORRELATIONS IN DISEASES

Hours 60

Marks 100

Unit- I: Inborn errors of metabolism

Alkaptonuria, Phenylketonuria, Glycogen and Lipid storage diseases, SCID, Diseases caused due to misfolded proteins: Alzheimer's, Huntington's disease, Kuru, Creutzfeldt-Jakob disease.

Unit- II: Nutritional Deficiency and Life style diseases

Kwashiorkar, Marasmus. Beri-beri, Scurvy, Pellagra. Night blindness. Rickets, Osteomalacia, Osteoporosis. Wilson's disease. Obesity. Cardiovascular diseases, Atherosclerosis, Diabetes mellitus-II. Inflammatory Bowel Disease (IBD).

Unit- III: Hormonal Imbalances and Autoimmune diseases

Outline of hormone action and imbalances leading to disease - precocious puberty, hyper and hypopituitarism. Hyper and hypothyroidism. Concepts in immune recognition - self and non self- discrimination, organ specific autoimmune diseases – Hashimoto's thyroiditis, Grave's disease, myasthenia gravis; Systemic diseases - SLE, rheumatoid arthritis; Diabetes Mellitus-I.

Unit- IV: Classification of infectious agents

Bacteria, Viruses, protozoa and fungi. Source, reservoir and transmission of pathogens, Antigenic shift and antigenic drift. Host parasite relationship, types of infections associated with parasitic organisms. Overview of viral and bacterial pathogenesis. Infection and evasion.

Unit- V: Infectious diseases

Viral infection (polio, measles, mumps, influenza, HIV) . Bacterial infections (tetanus, diphtheria, tuberculosis, typhoid, cholera). Protozoan (Plasmodium and Trypanosoma) and parasitic infections. Vaccines against diseases. General strategies in the design and development of vaccines.

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Re-Accredited by NAAC with Grade "A"
CLUSTER ELECTIVE –VIII-A: VI SEMESTER PRACTICAL
MEDICAL DIAGNOSTICS
PRACTICAL – 1 HAEMATOLOGY

1. Collection of blood specimen and serum preparation.
2. Blood glucose and urine glucose estimation.
3. Determination of serum proteins, SGOT, SGPT, S.ALP, S.ACP
4. Determination of sodium, potassium and chlorides
5. Routine haematological tests – Blood smear preparation, TC, DC, ESR, Platelet count.
6. Determination of Haemoglobin.
7. Determination of PCV.
8. Determination of bleeding time.
9. Determination of blood clotting time.
10. Blood Grouping.

PRACTICAL – 2 CLINICAL MICROBIOLOGY

1. Preparation of nutrient agar, culture plates and isolation of bacteria on nutrient agar plate.
2. Study of permanent slides of *Candida albicans*, *Enterobactersps*, *Pseudomonas*, *Salmonella* sps, *Shigellasps*, *Staphylococcusaureus*, *Streptococcus pyogenes* and *Vibrio cholera*.
3. Staining methods – Albert's and Gram's staining methods.
4. Hepatitis test and Pregnancy test using ELISA
5. VDRL qualitative and quantitative test.
6. WIDAL slide agglutination and tube agglutination test.

PRACTICAL - III: BIOCHEMICAL CORRELATIONS IN DISEASES

1. Glucose tolerance test.
2. Lipid profile: triglycerides and total cholesterol.
3. Obesity parameters.
4. RBC counting and haemoglobin estimation.
5. Blood pressure measurements.
6. Bone density measurements (visit to a nearby clinic).
7. T4 /TSH assays.
8. Tridot Test/ Lateral flow test for viral diseases

ANNEXURE - VI

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL

Re-Accredited by NAAC with Grade "A"

CHOICE BASED CREDIT SYSTEM (w.e.f. 2016-17)

FINAL YEAR B.Sc. MATHEMATICS

SIXTH SEMESTER (w.e.f. 2017-18)

CLUSTER ELECTIVE-VIII-A-1: INTEGRAL TRANSFORMS

UNIT – 1 (12 hrs) Application of Laplace Transform to solutions of Differential Equations

:-

Solutions of ordinary Differential Equations.

Solutions of Differential Equations with constants co-efficient

Solutions of Differential Equations with Variable co-efficient

UNIT – 2 (12 hrs) Application of Laplace Transform :-

Solution of simultaneous ordinary Differential Equations.

Solutions of partial Differential Equations.

UNIT – 3 (12 hrs) Application of Laplace Transforms to Integral Equations :-

Definitions : Integral Equations-Abel's, Integral Equation-Integral Equation of Convolution Type, Integro Differential Equations. Application of L.T. to Integral Equations.

UNIT –4 (12 hrs) Fourier Transforms-I :-

Definition of Fourier Transform – Fourier's in Transform – Fourier cosine Transform – Linear Property of Fourier Transform – Change of Scale Property for Fourier Transform – sine Transform and cosine transform shifting property – modulation theorem.

UNIT – 5 (12 hrs) Fourier Transform-II :-

Convolution Definition – Convolution Theorem for Fourier transform – parseval's Indentify – Relationship between Fourier and Laplace transforms – problems related to Integral Equations.

Finte Fourier Transforms :-

Finte Fourier Sine Transform – Finte Fourier Cosine Transform – Inversion formula for sine and cosine Transforms only statement and related problems.

Prescribed Text Book: Integral Transforms, S.Chand & Company Pvt.Ltd., New Delhi.

Reference Books :-

1. Integral Transforms by A.R. Vasistha and Dr. R.K. Gupta Published by Krishna Prakashan Media Pvt. Ltd. Meerut.
2. A Course of Mathematical Analysis by Shanthi Narayana and P.K. Mittal, Published by S. Chand and Company pvt. Ltd., New Delhi.
3. Fourier Series and Integral Transforms by Dr. S. Sreenadh Published by S.Chand and Company Pvt. Ltd., New Delhi.

4. Lapalce and Fourier Transforms by Dr. J.K. Goyal and K.P. Gupta, Published by Pragathi Prakashan, Meerut.
5. Integral Transforms by M.D. Raising hania, - H.C. Saxsena and H.K. Dass Published by S.Chand and Company pvt. Ltd., New Delhi.

Suggested Activities:

Seminar/ Quiz/ Assignments

ANNEXURE - VII

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL

Re-Accredited by NAAC with Grade "A"

CHOICE BASED CREDIT SYSTEM (w.e.f. 2016-17)

FINAL YEAR B.Sc. MATHEMATICS

SIXTH SEMESTER (w.e.f. 2017-18)

CLUSTER ELECTIVE-VIII-A-2: ADVANCED NUMERICAL ANALYSIS

Unit – I (10 Hours)

Curve Fitting: Least – Squares curve fitting procedures, fitting a straight line, nonlinear curve fitting, Curve fitting by a sum of exponentials.

UNIT- II : (12 hours)

Numerical Differentiation: Derivatives using Newton's forward difference formula, Newton's backward difference formula, Derivatives using central difference formula, Stirling's interpolation formula, Newton's divided difference formula, Maximum and minimum values of a tabulated function.

UNIT- III : (12 hours)

Numerical Integration: General quadrature formula on errors, Trapezoidal rule, Simpson's 1/3 – rule, Simpson's 3/8 – rule, and Weddle's rules, Euler – Maclaurin Formula of summation and quadrature, The Euler transformation.

UNIT – IV: (14 hours)

Solutions of simultaneous Linear Systems of Equations: Solution of linear systems – Direct methods, Matrix inversion method, Gaussian elimination methods, Gauss-Jordan Method, Method of factorization, Solution of Tridiagonal Systems, Iterative methods. Jacobi's method, Gauss-Seidel method.

UNIT – V (12 Hours)

Numerical solution of ordinary differential equations: Introduction, Solution by Taylor's Series, Picard's method of successive approximations, Euler's method, Modified Euler's method, Runge – Kutta methods.

Prescribed Text Book: Advanced Numerical Analysis, S.Chand & Company Pvt.Ltd., New Delhi

Reference Books :

1. Numerical Analysis by S.S.Sastry, published by Prentice Hall India (Latest Edition).
2. Numerical Analysis by G. Sankar Rao, published by New Age International Publishers, Hyderabad.

1. Finite Differences and Numerical Analysis by H.C Saxena published by S. Chand and Company, Pvt.
Ltd., New Delhi.
2. Numerical methods for scientific and engineering computation by M.K.Jain, S.R.K.Iyengar, R.K. Jain.

Suggested Activities:

Seminar/ Quiz/ Assignments

ANNEXURE - VIII
KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
CHOICE BASED CREDIT SYSTEM (w.e.f. 2016-17)
FINAL YEAR B.Sc. MATHEMATICS
SIXTH SEMESTER (w.e.f. 2017-18)
CLUSTER ELECTIVE-VIII-B-1: PRINCIPLES OF MECHANICS

Unit – I : (10 hours)

D'Alembert's Principle and Lagrange's Equations : some definitions – Lagrange's equations for a Holonomic system – Lagrange's Equations of motion for conservative, nonholonomic system.

Unit – II: (10 hours)

Variational Principle and Lagrange's Equations: Variational Principle – Hamilton's Principle – Derivation of Hamilton's Principle from Lagrange's Equations – Derivation of Lagrange's Equations from Hamilton's Principle – Extension of Hamilton's Principle – Hamilton's Principle for Non-conservative, Non-holonomic system – Generalised Force in Dynamic System – Hamilton's Principle for Conservative, Non-holonomic system – Lagrange's Equations for Non-conservative, Holonomic system - Cyclic or Ignorable Coordinates.

Unit –III: (15 hours)

Conservation Theorem, Conservation of Linear Momentum in Lagrangian Formulation – Conservation of angular Momentum – conservation of Energy in Lagrangian formulation.

Unit – IV: (15 hours)

Hamilton's Equations of Motion: Derivation of Hamilton's Equations of motion – Routh's procedure – equations of motion – Derivation of Hamilton's equations from Hamilton's Principle – Principle of Least Action – Distinction between Hamilton's Principle and Principle of Least Action.

Unit – V: (10 hours)

Canonical Transformation: Canonical coordinates and canonical transformations – The necessary and sufficient condition for a transformation to be canonical – examples of canonical transformations – properties of canonical transformation – Lagrange's bracket is canonical invariant – poisson's bracket is canonical invariant - poisson's bracket is invariant under canonical transformation – Hamilton's Equations of motion in poisson's bracket – Jacobi's identity for poisson's brackets.

Reference Text Books :

1. Classical Mechanics by C.R.Mondal Published by Prentice Hall of India, New Delhi.
2. A Text Book of Fluid Dynamics by F. Charlton Published by CBS Publications, New Delhi.
3. Classical Mechanics by Herbert Goldstein, published by Narosa Publications, New Delhi.

- 4.** Fluid Mechanics by T. Allen and I.L. Ditsworth Published by (McGraw Hill, 1972)
- 5.** Fundamentals of Mechanics of fluids by I.G. Currie Published by (CRC, 2002)
- 6.** Fluid Mechanics : An Introduction to the theory, by Chia-shun Yeh Published by (McGraw Hill, 1974)
- 7.** Introduction to Fluid Mechanics by R.W Fox, A.T Mc Donald and P.J. Pritchard Published by (John Wiley and Sons Pvt. Ltd., 2003)

ANNEXURE - IX
KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
CHOICE BASED CREDIT SYSTEM (w.e.f. 2016-17)
FINAL YEAR B.Sc. MATHEMATICS
SIXTH SEMESTER (w.e.f. 2017-18)
CLUSTER ELECTIVE-VIII-B-2: FLUID MECHANICS

Unit – I : (10 hours)

Kinematics of Fluids in Motion

Real fluids and Ideal fluids – Velocity of a Fluid at a point – Streamlines and pathlines – steady and Unsteady flows – the velocity potential – The Vorticity vector – Local and Particle Rates of Change – The equation of Continuity – Acceleration of a fluid – Conditions at a rigid boundary – General Analysis of fluid motion.

Unit – II : (10 hours)

Equations of motion of a fluid- Pressure at a point in fluid at rest – Pressure at a point in a moving fluid – Conditions at a boundary of two inviscid immiscible fluids – Euler's equations of motion – Bernoulli's equation – Worked examples.

Unit – III : (10 hours)

Discussion of the case of steady motion under conservative body forces - Some flows involving axial symmetry – Some special two-dimensional flows – Impulsive motion – Some further aspects of vortex motion.

Unit – IV : (15 hours)

Some Two – dimensional Flows, Meaning of two-dimensional flow – Use of Cylindrical polar coordinates – The stream function – The complex potential for two-dimensional, Irrotational, Incompressible flow – Uniform Stream – The Milne-Thomson Circle theorem – the theorem of Blasius.

Unit – V : (15 hours)

Viscous flow, Stress components in a real fluid – Relations between Cartesian components of stress – Translational motion of fluid element – The rate of strain quadric and principal stresses – Some further properties of the rate of strain quadric – Stress analysis in fluid motion – Relations between stress and rate of strain – the coefficient of viscosity and laminar flow - The Navier-Stokes equations of motion of a viscous fluid.

Reference Text Books :

1. A Text Book of Fluid Dynamics by F. Charlton Published by CBS Publications, New Delhi.

2. Classical Mechanics by Herbert Goldstein, published by Narosa Publications, New Delhi.
3. Fluid Mechanics by T. Allen and I.L. Ditsworth published by (McGraw Hill, 1972)
4. Fundamentals of Mechanics of fluids by I.G. Currie published by (CRC, 2002)
5. Fluid Mechanics, An Introduction to the theory by Chia-shun Yeh published by (McGraw Hill, 1974)
6. Fluids Mechanics by F.M White published by (McGraw Hill, 2003)
7. Introduction to Fluid Mechanics by R.W Fox, A.T Mc Donald and P.J. Pritchard published by (John Wiley and Sons Pvt. Ltd., 2003)

ANNEXURE - X
KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
CHOICE BASED CREDIT SYSTEM (w.e.f. 2016-17)
FINAL YEAR B.Sc. MATHEMATICS
SIXTH SEMESTER (w.e.f. 2017-18)
CLUSTER ELECTIVE-VIII-C-1: GRAPH THEORY

UNIT – I (12 hrs) Graphs and Sub Graphs :

Graphs , Simple graph, graph isomorphism, the incidence and adjacency matrices, sub graphs, vertex degree, Hand shaking theorem, paths and connection, cycles.

UNIT – II (12 hrs)

Applications, the shortest path problem, Sperner's lemma.

Trees :

Trees, cut edges and Bonds, cut vertices, Cayley's formula.

UNIT – III (12 hrs) :

Applications of Trees - the connector problem.

Connectivity

Connectivity, Blocks and Applications, construction of reliable communication Networks,

UNIT – IV (12 hrs):

Euler tours and Hamilton cycles

Euler tours, Euler Trail, Hamilton path, Hamilton cycles , dodecahedron graph, Petersen graph, hamiltonian graph, closure of a graph.

UNIT – V (12 hrs)

Applications of Eulerian graphs, the Chinese postman problem, Fleury's algorithm - the travelling salesman problem.

Reference Books :

1. Graph theory with Applications by J.A. Bondy and U.S.R. Murthy published by Mac. Millan Press
2. Introduction to Graph theory by S. Arumugham and S. Ramachandran, published by scitech Publications, Chennai-17.
3. A Text Book of Discrete Mathamatics by Dr. Swapan Kumar Sankar, published by S.Chand & Co. Publishers, New Delhi.
4. Graph theory and combinations by H.S. Govinda Rao published by Galgotia Publications.

ANNEXURE - XI
KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
CHOICE BASED CREDIT SYSTEM (w.e.f. 2016-17)
FINAL YEAR B.Sc. MATHEMATICS
SIXTH SEMESTER (w.e.f. 2017-18)
CLUSTER ELECTIVE-VIII-C-2: APPLIED GRAPH THEORY

UNIT – I (12 hrs) :

Matchings

Matchings – Alternating Path, Augmenting Path - Matchings and coverings in Bipartite graphs, Marriage Theorem, Minimum Coverings.

UNIT –II (12 hrs) :

Perfect matchings, Tutte's Theorem, Applications, The personal Assignment problem -The optimal Assignment problem, Kuhn-Munkres Theorem.

UNIT –III (12 hrs) :

Edge Colorings

Edge Chromatic Number, Edge Coloring in Bipartite Graphs - Vizing's theorem.

UNIT –IV (12 hrs) :

Applications of Matchings, The timetabling problem.

Independent sets and Cliques

Independent sets, Covering number , Edge Independence Number, Edge Covering Number - Ramsey's theorem.

UNIT –V (12 hrs) :

Determination of Ramsey's Numbers – Erdos Theorem, Turan's theorem and Applications, Sehur's theorem. A Geometry problem.

Reference Books :-

1. Graph theory with Applications by J.A. Bondy and U.S.R. Murthy, published by Mac. Millan Press.
2. Introduction to graph theory by S. Arumugham and S. Ramachandran published by SciTech publications, Chennai-17.
3. A text book of Discrete Mathematics by Dr. Swapan Kumar Sarkar, published by S. Chand Publishers.
4. Graph theory and combinations by H.S. Govinda Rao, published by Galgotia Publications.

ANNEXURE - IV
KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
III Year – VI Semester B.Sc.(Physics)
DSC – 2 Cluster Elective Paper VIII(C-1): Solar Thermal and Photovoltaic Aspects (For
Maths Combinations)
w.e.f – 2017-2018

No. of Hours per week: 04

Total Lectures: 60

UNIT-I (12 hrs)

1. Basics of Solar Radiation: Structure of Sun, Spectral distribution of extra terrestrial radiation, Solar constant, Concept of Zenith angle and air mass, Definition of declination, hour angle, solar and surface azimuth angles; Direct, diffuse and total solar radiation, Solar intensity measurement – Thermoelectric pyranometer and pyrheliometer.

2. Radiative Properties and Characteristics of Materials: Reflection, absorption and transmission of solar radiation through single and multi covers; Kirchoff's law – Relation between absorptance, emittance and reflectance; Selective Surfaces - preparation and characterization, Types and applications; Anti-reflective coating.

UNIT-II (14 hrs)

3. Flat Plate Collectors (FPC) : Description of flat plate collector, Liquid heating type FPC, Energy balance equation, Efficiency, Temperature distribution in FPC, Definitions of fin efficiency and collector efficiency, Evacuated tubular collectors.

4. Concentrating Collectors: Classification, design and performance parameters; Definitions of aperture, rim-angle, concentration ratio and acceptance angle; Tracking systems; Parabolic trough concentrators; Concentrators with point focus.

Unit-III (14 hrs)

5. Solar photovoltaic (PV) cell: Physics of solar cell –Type of interfaces, homo, hetero and schottky interfaces, Photovoltaic Effect, Equivalent circuit of solar cell, Solar cell output parameters, Series and shunt resistances and its effect on cell efficiency; Variation of efficiency with band-gap and temperature.

6. Solar cell fabrication: Production of single crystal Silicon: Czochralski (CZ) and Float Zone (FZ) methods, Silicon wafer fabrication, Wafer to cell formation, Thin film solar cells, Advantages, CdTe/CdS cell formation, Multi-junction solar cell; Basic concept of Dye-sensitized solar cell, Quantum dot solar cell.

UNIT-IV (8 hrs)

Solar PV systems: Solar cell module assembly – Steps involved in the fabrication of solar module, Module performance, I-V characteristics, Modules in series and parallel, Module

protection – use of Bypass and Blocking diodes, Solar PV system and its components, PV array, inverter, battery and load.

UNIT-V (12 hrs)

Solar thermal applications: Solar hot water system (SHWS), Types of SHWS, Standard method of testing the efficiency of SHWS; Passive space heating and cooling concepts, Solar desalinators and driers, Solar thermal power generation.

Solar PV applications: SPV systems; Stand alone, hybrid and grid connected systems, System installation, operation and maintenance; Field experience; PV market analysis and economics of SPV systems.

Reference Books:

1. Solar Energy Utilization, G. D. Rai, Khanna Publishers
2. Solar Energy- Fundamentals, design, modeling and applications, G.N. Tiwari, Narosa Pub., 2005.
3. Solar Energy-Principles of thermal energy collection & storage, S.P. Sukhatme, Tata McGrawHill Publishers, 1999.
4. Solar Photovoltaics- Fundamentals, technologies and applications, Chetan Singh Solanki, PHI Learning Pvt. Ltd.,
5. Science and Technology of Photovoltaics, P. Jayarama Reddy, BS Publications, 2004.

ANNEXURE – IV(a)
KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
III Year – VI Semester B.Sc. (Physics)
DSC – 2 Cluster Elective paper Lab Practical VIII(C-1)
w.e.f – 2017 -2018

Experiments to be done and recorded.2hrs/Week

1. Measurement of direct solar radiation using pyr heliometer.
2. Measurement of global and diffuse solar radiation using pyranometer.
3. Measurement of emissivity, reflectivity and transsivity.
4. Measurement of efficiency of solar flat plate collector.
5. Performance testing of solar air dryer unit.
6. Effect of tilt angle on the efficiency of solar photovoltaic panel.
7. Study on solar photovoltaic panel in series and parallel combination.

ANNEXURE - V
KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
III Year – VI Semester B.Sc.(Physics)
DSC – 2 Cluster Elective Paper VIII(C-2): Wind, Hydro & Ocean Energies (For Maths
Combinations)
w.e.f – 2017-2018

No. of Hours per week: 04

Total Lectures:60

UNIT-I

- 1. Introduction:** Wind generation, meteorology of wind, world distribution of wind, wind speed variation with height, wind speed statistics, Wind energy conversion principles; General introduction; Types and classification of WECS; Power, torque and speed characteristics.
- 2. Wind Measurements:** Eolian features, biological indicators, rotational anemometers, other anemometers, wind measurements with balloons.

UNIT-II

- 3. Wind Energy Conversion System:** Aerodynamic design principles; Aerodynamic theories; Axial momentum, blade element and combine theory; Rotor characteristics; Maximum power coefficient; Prandtl's tip loss correction.
- 4. Design of Wind Turbine:** Wind turbine design considerations; Methodology; Theoretical simulation of wind turbine characteristics; Test methods.

UNIT-III

- 5. Wind Energy Application:** Wind pumps: Performance analysis, design concept and testing; Principle of wind energy generation; Standalone, grid connected and hybrid applications of wind energy conversion systems, Economics of wind energy utilization; Wind energy in India; Environmental Impacts of Wind farms.

UNIT-IV

- 6. Small Hydropower Systems:** Overview of micro, mini and small hydro systems; Hydrology; Elements of pumps and turbine; Selection and design criteria of pumps and turbines; Site selection; Speed and voltage regulation; Investment issues load management and tariff collection; potential of small hydro power in India. Wind and hydro based stand-alone hybrid power systems.

UNIT-V

- 7. Ocean Thermal, Tidal and Wave Energy Systems:** Ocean Thermal - Introduction, Technology process, Working principle, Resource and site requirements, Location of OCET system,

Electricity generation methods from OCET, Advantages and disadvantages, Applications of OTEC,

8. Tidal Energy - Introduction, Origin and nature of tidal energy, Merits and limitations, Tidal energy technology, Tidal range power, Basic modes of operation of tidal systems. Wave Energy – Introduction, Basics of wave motion, Power in waves, Wave energy conversion devices, Advantages and disadvantages, Applications of wave energy.

Reference Books:

1. Dan Charis, Mick Sagrillo, Lan Woofenden, “Power from the Wind”, New Society Pub., 2009.
2. Erich Hau, “Wind Turbines-Fundamentals, Technologies, Applications, Economics”, 2nd Edition, Springer Verlag, Berlin Heidelberg, NY, 2006.
3. Joshue Earnest, Tore Wizelius, Wind Power and Project Development”, PHI Pub., 2011.
4. T. Burton, D. Sharpe, N. Jenkins, E. Bossanyi, Wind Energy Handbook, John Wiley Pub., 2001.
5. Paul Gipe, “Wind Energy Basics”, Chelsea Green Publications, 1999.
6. Khan, B.H., “Non-Conventional Energy Resources”, TMH, 2nd Edition, New Delhi, 2009.
7. Tiwari, G.N., and Ghosal, M.K, Renewable Energy Resources – Basic Principles and applications, Narosa Publishing House, 2007.

ANNEXURE – V(a)
KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
III Year – VI Semester B.Sc.(Physics)
DSC – 2 Cluster Elective paper Lab Practical VIII(C-2)
w.e.f – 2017 -2018

Experiments to be done and recorded

2hrs/Week

1. Estimation of wind speed using anemometer.
2. Determination of characteristics of a wind generator
3. Study the effect of number and size of blades of a wind turbine on electric power output.
4. Performance evaluation of vertical and horizontal axes wind turbine rotors.
5. Study the effect of density of water on the output power of hydroelectric generator.
6. Study the effect of wave amplitude and frequency on the wave energy generated.

ANNEXURE - VI
KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
III Year – VI Semester B.Sc.(Physics)
DSC – 2 Cluster Elective Paper VIII(C-3): Energy Storage Devices (For Maths
Combinations)
w.e.f – 2017-2018

No. of Hours per week:04

Total

Lectures:60

UNIT-I (12 hr)

1. Energy Storage:Need of energy storage; Different modes of energy storage, Flywheel storage, Electrical and magnetic energy storage: Capacitors,electromagnets; Chemical Energy storage: Thermo-chemical, photo-chemical, bio-chemical,electro-chemical, fossil fuels and synthetic fuels. Hydrogen for energy storage.

UNIT-II (12 hrs)

2. Electrochemical Energy Storage Systems:Batteries: Primary, Secondary, Lithium, Solid-state and molten solvent batteries; Leadacid batteries; Nickel Cadmium Batteries; Advanced Batteries. Role of carbon nano-tubes in electrodes.

UNIT-III (12 hrs)

3. Magnetic and Electric Energy Storage Systems:Superconducting Magnet Energy Storage(SMES) systems; Capacitor and battery:Comparison and application; Super capacitor: Electrochemical Double Layer Capacitor(EDLC), principle of working, structure, performance and application.

UNIT-IV (12 hrs)

4. Fuel Cell: Fuel cell definition, difference between batteries and fuel cells, fuel cell components, principle and working of fuel cell, performance characteristics,efficiency, fuel cell stack, fuel cell power plant: fuel processor, fuel cell powersection, power conditioner, Advantages and disadvantages.

UNIT-V (12 hrs)

5. Types of Fuel Cells: Alkaline fuel cell, polymer electrolyte fuel cell, phosphoric acid fuel cell,molten carbonate fuel cell; solid oxide fuel cell,proton exchange membrane fuel cell, problems with fuel cells, applications of fuel cells.

REFERENCE BOOKS

1. J. Jensen and B. Squirensen, Fundamentals of Energy Storage, John Wiley, NY, 1984.
2. M. Barak, Electrochemical Power Sources: Primary and Secondary Batteries by, P. Peregrinus, IEE, 1980.
3. P.D. Dunn, Renewable Energies, Peter Peregrinus Ltd, London, 1986.
4. B. Viswanathan and M. A. Scibioh, Fuel Cells-Principles and Applications, University Press, 2006.
5. Hart, A.B and G.J. Womack, Fuel Cells: Theory and Application, Prentice Hall, New York, 1989.

ANNEXURE – VI(a)
KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
III Year – VI Semester B.Sc.(Physics)
DSC – 2 Cluster Elective paper Lab Practical VIII(C-3)
w.e.f – 2017 -2018

Minimum of 6 experiments to be done and recorded 2hrs/Week

1. Study of charge and discharge characteristics of storage battery.
2. Study of charging and discharging behavior of a capacitor.
3. Determination of efficiency of DC-AC inverter and DC-DC converters
4. Study of charging characteristics of a Ni-Cd battery using solar photovoltaic panel.
5. Performance estimation of a fuel cell.
6. Study of effect of temperature on the performance of fuel cell.

ANNEXURE - IV
KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"
CHOICE BASED CREDIT SYSTEM (w.e.f. 2017-18)
B.Sc. Three-Year Degree Course (Semester Wise)
Syllabus for IIIrd Year – VIth Semester.

Part – II : COMPUTER SCIENCE

(Cluster)Paper-VIII: Elective-1: Distributed Systems

No. of hours per week: 04

Max Marks: 75

UNIT I

Introduction to Distributed Computing Systems, System Models, and Issues in Designing a Distributed Operating System, Examples of distributed systems.

UNIT II

Features of Message Passing System, Synchronization and Buffering, Introduction to RPC and its models, Transparency of RPC, Implementation Mechanism, Stub Generation and RPC Messages, Server Management, Call Semantics, Communication Protocols and Client Server Binding.

UNIT III

Introduction, Design and implementation of DSM system, Granularity and Consistency Model, Advantages of DSM, Clock Synchronization, Event Ordering, Mutual exclusion, Deadlock, Election Algorithms.

UNIT IV

Task Assignment Approach, Load Balancing Approach, Load Sharing Approach, Process Migration and Threads.

UNIT V

File Models, File Accessing Models, File Sharing Semantics, File Caching Schemes, File Replication, Atomic Transactions, Cryptography, Authentication, Access control and Digital Signatures.

Reference Books

1. Pradeep. K. Sinha: “ Distributed Operating Systems: Concepts and Design”, PHI, 2007.
2. George Coulouris, Jean Dollimore, Tim Kindberg: “ Distributed Systems”, Concept and Design, 3rd Edition, Pearson Education, 2005.

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL

Re-Accredited by NAAC with Grade "A"

CHOICE BASED CREDIT SYSTEM (w.e.f. 2017-18)

B.Sc. Three-Year Degree Course (Semester Wise)

Syllabus for IIIrd Year – VIth Semester.

Part – II : COMPUTER SCIENCE

(Cluster)Paper-VIII: Elective-2: Cloud Computing

No. of hours per week: 04

Max Marks: 75

Unit 1

Cloud Computing Overview – Origins of Cloud computing – Cloud components - Essential characteristics – On-demand self-service , Broad network access , Location independent resource pooling , Rapid elasticity , Measured service

Unit II

Cloud scenarios – Benefits: scalability , simplicity , vendors ,security. Limitations – Sensitive information - Application development – Security concerns - privacy concern with a third party - security level of third party - security benefits Regularity issues: Government policies

Unit III

Cloud architecture: Cloud delivery model – SPI framework , SPI evolution , SPI vs. traditional IT Model

Software as a Service (SaaS): SaaS service providers – Google App Engine, Salesforce.com and google platform – Benefits – Operational benefits - Economic benefits – Evaluating SaaS

Platform as a Service (PaaS): PaaS service providers – Right Scale – Salesforce.com – Rackspace – Force.com – Services and Benefits

Unit IV

Infrastructure as a Service (IaaS): IaaS service providers – Amazon EC2 , GoGrid – Microsoft soft implementation and support – Amazon EC service level agreement – Recent developments – Benefits **Cloud deployment model** : Public clouds – Private clouds – Community clouds - Hybrid clouds - Advantages of Cloud computing

Unit V

Virtualization: Virtualization and cloud computing - Need of virtualization – cost , administration , fast deployment , reduce infrastructure cost - limitations

Types of hardware virtualization: Full virtualization - partial virtualization - para virtualization

Desktop virtualization: Software virtualization – Memory virtualization - Storage virtualization – Data virtualization – Network virtualization **Microsoft Implementation:** Microsoft Hyper V – Vmware features and infrastructure – Virtual Box - Thin client

Reference Books

1. Cloud computing a practical approach - Anthony T.Velte , Toby J. Velte Robert Elsenpeter TATA McGraw- Hill , New Delhi - 2010
2. Cloud Computing: Web-Based Applications That Change the Way You Work and Collaborate Online - Michael Miller - Que 2008
3. Cloud Computing, Theory and Practice, Dan C Marinescu, MK Elsevier.
4. Cloud Computing, A Hands on approach, Arshadeep Bahga, Vijay Madiseti, University Press

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL

Re-Accredited by NAAC with Grade "A"

CHOICE BASED CREDIT SYSTEM (w.e.f. 2017-18)

B.Sc. Three-Year Degree Course (Semester Wise)

Syllabus for IIIrd Year – VIth Semester.

Part – II : COMPUTER SCIENCE

(Cluster)Paper-VIII: Elective -3:Grid Computing

No. of hours per week: 04

Max Marks: 75

UNIT I

CONCEPTS AND ARCHITECTURE :Introduction-Parallel and Distributed Computing- Cluster Computing-Grid Computing- Anatomy and Physiology of Grid- Web and Grid Services- Grid Standards - OGSA-WSRF - Trends, Challenges and applications.

UNIT II

GRID MONITORING :Grid Monitoring Architecture (GMA) - An Overview of Grid Monitoring Systems- R-GMA –Grid ICE – MDS- Service Level Agreements (SLAs) -Other Monitoring Systems- Ganglia, Grid Mon, Hawkeye and Network Weather Service.

UNIT III

GRID SECURITY AND RESOURCE MANAGEMENT: Grid Security-A Brief Security Primer-PKI-X509 Certificates-Grid Security-Grid Scheduling and Resource Management, Grid way and Grid bus Broker-principles of Local Schedulers- Overview of Condor, SGE, PBS, LSF - Grid Scheduling with QoS.

UNIT IV

DATA MANAGEMENT AND GRID PORTALS :Data Management-Categories and Origins of Structured Data-Data Management Challenges-Architectural Approaches-Collective Data Management Services-Federation Services-Grid Portals-Generations of Grid Portals.

UNIT V

GRID MIDDLEWARE: List of globally available Middleware's - Case Studies-Recent version of Globus Toolkit and gLite - Architecture, Components and Features. Features of Next generation grid.

Reference Books

1. Ian Foster, Carl Kesselman, The Grid 2: Blueprint for a New Computing Infrastructure, Elsevier Series, 2004.
2. Vladimir Silva, Grid Computing for Developers, Charles River Media, January 2006.
3. Parvin Asadzadeh, Rajkumar Buyya, Chun Ling Kei,Deepa Nayar, and Srikumar Venugopal, Global Grids and Software Toolkits: A Study of Four Grid Middleware Technologies, High Performance Computing : Paradigm and Infrastructure, Laurence Yang and Minyi Guo (editor s), Wiley Press, New Jersey, USA, June 2005.
4. Jarek Nabrzyski, Jennifer M. Schopf, Jan Weglarz , Grid Resource Management: State of the Art and Future Trends , (International Series in Operations Research & Management Science), Springer; First edition, 2003

KVR GOVT. COLLEGE FOR WOMEN (AUTONOMOUS), KURNOOL
Re-Accredited by NAAC with Grade "A"

PAPER 204: OPEN ELECTIVE –I: PLANTS AND HUMAN WELFARE

UNIT I : PLANTS AND ENVIRONMENTAL VALUES

Plants-Ecosystem services. Direct, Indirect and optional (future possibilities of usage) services. Human civilization and Plants – Agriculture and Forestry. Plants and landscape ecology. Plants role in soil protection and water conservation. Role of plants in climate change scenario-carbon credits. Plants in combating pollution- as bioremediants. Poisonous plants. Aliens and invasive species.

UNIT II: PLANT RESOURCES

Brief account of the following plant Resources(examples limited to 10 under each category)- local,common and botanical names; morphology and utility Edible Resources- Cereals, Millets, Pulses, Spices and Condiments; Fruits and Nuts; Vegetables; Starch and Sugar Yielding Plants; Oil yielding plants.Plants yielding essential oils, saponins, fibres, cellulose products: gums, resins, rubber, tannins and dye yielding plants. Plants as sources of timber, biofuels and fire wood. Forage plants and Ornamental Plants.

UNIT III: PLANTS AND MEDICINE

Introduction, History, Scope and importance of Indigenous systems of medicine (Ethnomedicine, Traditional medicine, Ayurveda, Siddha, Unani), Homeopathy and Allopathy. Different types of crude drugs- based on origin,application and purpose/use. Wild and Potential Drug Yielding plants and their therapeutic values with reference to forests of AP. Phytomedicine and Applications; Importance of phytopharmaceuticals, Pharmacognosy-Principles, Identification of different constituents. Classification of Drugs . Analytical methods- drug adulteration and evaluation. Phytopharmacology and Molecular Farming

UNIT IV: PLANTS AS MODEL ORGANISMS

Introduction to model organisms.Types of model organisms. Genomic model organisms, Genetically modified organisms. Use of Model organism. Important model organisms- prokaryotes and Eukaryotes. E.coli., Chlamydomonas reinhardtii, Arabidopsis thaliana, Zea mays, Nicotiana benthamiana . Transgenic plants. Plants as bioreactors. Plantibodies.

SUGGESTED READINGS:

1. Alan beebay & anne- Maria Brennan. 2008. First Ecology. 3rd ed. Oxford University press.
2. Cotton CM. 1996. Ethnobotany: Principles and Applications
3. Cunningham, W.P. & M.A. Cunningham. 2007. Principles of Environmental Science- Inquiry and Applications. Tata Mc Graw Hill Publications. New Delhi.
4. Hill, Albertt, F. 1952. A Text Book of useful plants and plant products. Tata Mc Graw Hill Publications. New Delhi.
5. Kokate , C.K. AP. Purohit & SB .Gokhale. 2000. Pharmacognosy. Nirali Prakasan Publications.
6. Rao, RaviPrasad B. 2005. Biodiversity. In Pullaiah.T. (ed) Taxonomy of Angiosperms. Regency Publications. New Delhi. Pp: 287-317.
7. Sambamurthy, A.V.V. S. & N.S. Subbramanyam 2000. Economic Botany of Crop Plants. Asiatech Publishers Inc.
8. Trease, GE. And WC. Evans. 2002. Pharmocognosy. Saunders. New York.