

B. Tech. in Biotechnology

B.Tech. (Biotechnology) : II year : III Semester

BT 201 : Introduction to Biotechnology

Text books:

1. Biochemistry by D. Voet and J.G. Voet. Publisher: Wiley International (1990)
2. Concepts in Biotechnology by D. Balasubramanian, C.F.A. Bryce, K. Jayaraman, J. Green and K. Dharmalingam. Publisher: Universities Press (2004)

Reference books:

1. Microbiology by M.J. Pelczar, E.C.S. Chan and N.R. Krieg. IV edi. Pubr: McGraw Hill (2005)
2. Lehninger's Principle of Biochemistry by D.L. Nelson and M.M. Cox. Fifth edition. Publisher: W.H. Freeman & Co. (2008)
3. Biotechnology: An Introduction by S.R. Barnum. Publisher: Wadsworth Pub Company (2005)
4. Molecular Biology of the Gene by J.D. Watson, T.A. Baker, S.P. Bell, A. Gann, M. Levine and R. Losick. Publisher: Pearson Education (2004)
5. Physical Biochemistry: Applications to Biochemistry & Molecular Biology by D.M. Friefelder. Publisher: W.H. Freeman & Co (1982).
6. Genes IX by B. Lewin. Publisher: Pearson Education (2007)
7. Molecular Cell Biology by H. Lodish, A. Berk, S.L. Zipursky, P. Matsudaira, D. Baltimore and J. Darnell. Publishers: W.H. Freeman & Co (2007).
8. Practical Biochemistry: Principles and Techniques by K. Wilson and J. Walker. Publisher: Cambridge University Press. (2010)
9. Gene Cloning & DNA Analysis: An Introduction by T.A. Brown. Publisher: Blackwel I (2010)

BT 202 : Biochemistry

Text books:

1. Principles of Biochemistry by A.L. Lehninger, D.L. Nelson, M.M. Cox. Publisher: Worth Publishing (2008)
2. Biochemistry by L. Stryer. Publishers: W.H. Freeman and Company (2002)

Reference books:

1. Biochemical Calculations by I.H. Segal. Publisher: John Wiley and Sons (1968)
2. Biochemistry by C.K. Mathews, K.E. Van Holde and K.G. Ahern. Publisher: Benjamin/Cummings (1999).
3. Harper's Biochemistry by K. Robert, M.D. Murray, D.K. Granner, P.A. Mayes and V.I. Rodwell. Publisher: McGraw-Hill/Appleton and Lange (2006).
4. Principles of Physical Biochemistry by Kensal E. Van Holde, Curtis Johnson, K.E. Van Holde., W.Curtis Johnson and Pui Shing Ho. Publisher: P Hall. (2005)

BT 203 : Cell Biology

Text books:

1. Molecular Biology of the Cell by B. Alberts, D. Bray, J. Lewis, M. Roff, K. Roberts and J.D. Watson. Publisher: Garland Publishing Company (1994).
2. Gene IX by B. Lewin. Publisher: Oxford University Press (2007).

Reference books:

1. Cell in Development and Inheritance by E.B. Wilson. Pub: MacMilan, (2007)
2. Molecular Cell Biology by H. Lodish, A. Berk, S.L. Zipursky, P. Matsudaira, D Baltimore and J. Darnell. Publisher: WH Freeman and Company (2000).
3. Cell: a molecular approach by Geoffrey Cooper (2000).
4. Essential Cell Biology : An Introduction to the Molecular Biology of the Cell by B. Albers, D. Bray, A Johnson, J. Lewis, M. Roff, K Robert P. Walter and K Roberts. Publisher: Garland Publishers (1997)

BT 204 : Object Oriented Programming**Text books:**

1. E Balaguruswamy, "Object Oriented Programming with C++", The McGraw Hill (2008)
2. Patrick Naughton, S. Herbert, "C++: The Complete Reference", Wiley Dream Tech. (2005)

Reference books:

1. Jeri R.Hanly, Elliot B. Koffman, "Problem Solving and Program Design in C", Pearson Addison-Wesley (2006)
2. Behrouz A. Forouzan, Richrad F. Gilberg "A structured Programming Approach Using C", Thomson Computer Science-3rd edition [India edition] (2007)
3. Budd, "An Introduction to Object Oriented Programming", Addison Wesley (2002).
4. K.R.Venugopal, Rajkumar Buyya, T.Ravishankar, "Mastering C++", TMH (2003).
5. Lippman and Lajoie, "C++ Primer ", Addison Wesley (1998).

BT 205 : Biostatistics**Text books:**

1. Principles of Biostatistics by Pagano, M. and Gaureau, K. 7th ed., Publisher: Thomson Learning, (2007).
2. Probability and Statistics for Engineers and Scientists by Ross, S.M. 3rd ed. Publisher: Academic Press, (2005).

Reference books:

1. Probability and Statistics for Engineers and Scientists by Walpole, R.E., Myers, R.H., Myers, S.L., Ye, K. Publisher: Prentice Hall, Inc. (2002)
2. Statistical Method for Engineering and Sciences by Taneja, H.C. Pub: IKInternational, (2009).

BT 206 : Numerical Methods**Text books:**

1. Applied Numerical Analysis: Curtis F. Gerald and Patrick G. Wheatley- Pearson Education Ltd (2007)
2. Numerical Methods for Scientific and Engg. Computations: M.K.Jain, S.R.K. Iyenger and R.K. Jain- New Age International (1993)

Reference books:

1. Advanced Engineering Mathematics Vol.2: Taneja; I K International (2008)
2. Introductory Methods of Numerical Analysis: S.S.Sastry, P.H.I.(2005)

B.Tech. (Biotechnology): II Year: IV Semester**BT 211 : Molecular Biology****Text books:**

1. Gene IX by B. Lewin. Publisher: Oxford University Press (2007)
2. Genomes by T.A. Brown. Publisher: John Wiley and Sons Inc (2002).

Reference books:

1. Introduction to Practical Molecular Biology by P.D. Dabre. Publisher: John Wiley and Sons Inc (1988)
2. Molecular Biology LabFax by T.A. Brown. Pub: Bios Scientific Ltd. Oxford (1991)
3. Molecular Biology of the Cell by B. Alberts, D. Bray, J. Lewis, M. Raff, K. Roberts and J.D. Watson. Publisher: Garland Publishing (1989)
4. Molecular Biology of the Gene by J.D. Watson, A.M. Weiner, N.H. Hopkins, J.W. Roberts, J.A. Steitz and A.M. Weiner (The Benjamin/ Cummings Publishing Company Inc., California) (1987).
5. Molecular Cell Biology by H. Lodish, A. Berk, S. Zipursky, P. Matsudaira, D. Baltimore and J.E Darnell. Publisher: W.H. Freeman and Company (2000)
6. Molecular Cloning: A Laboratory Manual (3 Volume Set) by J. Sambrook and David W. Russel..Third edition Pub: Cold Spring Harbor Laboratory Press (2001)

BT 212 : Genetics**Text books:**

1. Concepts of Genetics By W.S. Klug, M.R.Cummings, M. A. Palladino C.A. Spencer and C. Spencer. Publisher: Benjamin-Cummings Pub Co. (2008)
2. Genetics by M.W. Strickberger. Publisher: Prentice Hall College Division (2008)

Reference books:

1. Genetics by U. Goodenough. Pub : International Thomson Publishing (1978)
2. Introduction to Genetic Analysis by A.J.F. Griffiths, J.H. Miller, D.T. Suzuki, R.C. Lewontin and W.M. Gelbart. Publisher : W.H. Freeman and Company (2000)
3. Modern Genetic Analysis by A.J. F. Griffiths, W.M. Gelbart, J.H. Miller and R.C. Lewontin and. Publisher: W.H. Freeman and Company (1999)
4. Principles of Genetics by E.J. Gardner, M.J. Simmons and D.P. Snustad. Publisher: John Wiley and Sons Inc (1991)

BT 213 : Microbiology**Text books:**

1. Microbiology by M.J. Pelczar, E.C.S. Chan and N.R. Kreig. Publisher: Tata McGraw Hill (2005).
2. Microbiology by Bernard D. Davis, Renato Dulbecco, Herman N.Eisen and Harold S. Ginsberg. Publisher: Lippincott Williams & Wilkins (1990)

Reference books:

1. Brock Biology of Microorganisms by M.T. Madigan, J.M. Martinko and J. Parker. Publisher: Prentice-Hall, Inc (1997)
2. General microbiology by R.Y. Stanier, J.L. Ingraham, M.L. Wheelis and P.R. Painter. Publisher: Macmillan (1987)
3. Microbial genetics by S.R. Maloy, J.E. Cronan and J.D. Freifelder. Publisher: Bartlett Publishers (1994)
4. Microbiology – A Laboratory Manual by J.G. Cappuccino and N. Sherman. Publisher: Addison-Wesley (2007)
5. Microbiology Applications – (A Laboratory Manual in General Microbiology) by H.J. Benson. Publisher: Wm C Brown Publishers (2001)
6. Microbiology by Prescott Harley and Klein. Publisher: Mc Graw Hill (2007).

BT 214 : Enzymology & Enzyme Technology**Text books:**

1. Fundamentals of Enzymology by Price and Stevens. Publisher: Oxford University Press (2002).
2. Applied Biocatalysis: From Product Request to Idea to Product by Tramper, J. Publisher: Harwood Academic Publishers GmbH, Chur (1994).

Reference books:

1. Introduction to Biocatalysis using Enzymes and Microorganisms by S.M.Roberts, N.J. Turner and A. J. Willetts. Publisher: Cambridge University Press (1995)
2. Enzyme Technology by Helmut Uhling. Publisher: John Wiley (1998)
3. Introduction to Proteins Structure by Branden and Tooze. Publisher: Garland Publishing (1998)
4. Enzyme Kinetics: Behavior and Analysis of Rapid Equilibrium and Steady - State Enzyme Systems by I.H. Segel. Publisher: Wiley-Interscience.(1993)
5. Enzyme Technology by M.F. Chaplin and C. Bucke. Publisher: Cambridge University Press (1990).
6. Enzymes: A Practical Introduction to Structure, Mechanism, and Data Analysis by R.A. Copeland .Publisher: John Wiley and Sons Inc (1996).
7. Enzymes: biochemistry, biotechnology and clinical chemistry by Trevor Palmer: Horwood Publishing Series (2001).

BT 215 : Data Structures & Algorithms**Text books:**

1. Ellis Horowitz and Sartaz Sahni. Fundamentals of Data structures. Galgotia Publications, New Delhi (1984).
2. Tanenbaum, "Data Structures using C and C++", PHI (1997).

Reference books:

1. Data Structures through C by Yashavant Kanetkar, Bpb publications (2008)
2. J. Tremblay and P.G. Sorensen. "An Introduction to Data Structures and Application", McGraw Hill College Division (1998)
3. Data Structures and Algorithms by A.V. Aho, J.E. Hopcroft and J. Ullman. Publisher: Addison-Wesley Publishing (1983)
4. Data Structures (Schaum's Outline series) by Lipschutz S.Pub: McGraw-Hill (2007)
5. R.L. Kruse, B.P. Leary, C.L. Tondo, "Data structure and program design in C", PHI.

BT 216 : Engineering Economics**Text books:**

1. G.J. Thuesen, & W.J. Fabrycky, Engineering Economy, Prentice-Hall of India Private Limited, New Delhi.
2. William G. Sullivan, James A. Bontadelli & Elin M. Wicks, Engineering Economy, Pearson Education Asia, First Indian reprint.
3. Donald G. Newnan, Jerome P. Lavelle & ted G. Eschenbach , Engineering Economic Analysis , Engineering press, Austin, Texas.
4. Seema Singh, Economics for Engineering Students, IK International Publishing House Pvt. Ltd.

B.Tech. (Biotechnology) : III Year : V Semester**BT 301: Instrumentation in Biotechnology****Text books:**

1. Principles and Techniques of Practical Biochemistry by Keith Wilson and John Walker, Fifth edition, Cambridge University Press (2000)
2. Biophysical Chemistry: The conformation of Biological Macromolecules by C.R.Cantor and P.R. Schimmel. Publisher: W.H. Freeman (1980).

Reference books:

1. Essentials of Biophysics by P. Narayanan. Pub: New Age International (2007)
2. Introduction to Spectroscopy by D.L. Pavia, G.M. Lampman and G. S. Kriz.and Vyvyan Publisher: Brooks Cole (2009)
3. Physical Chemistry of Macromolecules by C. Tanford. Publisher: John Wiley and Sons Inc.(1961)
4. Principles of Physical Biochemistry by Kensal E. Van Holde, Curtis Johnson, K.E. Van Holde., W.Curtis Johnson and Pui Shing Ho. Pub: Prentice Hall. (2005)
5. Process Biotechnology Fundamentals by S N Mukhopadhyay. Publisher: Viva Books Pvt. Ltd., New Delhi.(2010)
6. Microbiology by Bernard D. Davis, Renato Dulbecco, Herman N.Eisen and Harold S. Ginsberg. Publisher: Lippincott Williams & Wilkins (1990).

BT 302 : Immunology & Immunotechnology**Text books:**

1. Basic Immunology by A.K. Abbas and A.H. Lichtman. Third edition. Publisher: Saunders W.B. Company (2010)
2. Immunobiology by Charles Janeway, Paul Travers, Mark Walport and Mark J Shlomchik, Publisher: Garland Science, New York. (2001)

Reference books:

1. Immunology by Ivan Roitt, David Male and Johathan Brostoff Publisher: Mosby – Yearbook Inc (1996)
2. Kuby Immunology by T.J. Kindt, B.A. Osborne and R.A. Goldsby. Publisher: W.H. Freeman.(2006)
3. Production of Monoclonal Antibodies – Detailed Protocol by G.K. Lewis, University of Maryland (1995)
4. Immunology: A Short Course by R. Coico and G. Sunshine. Publisher: Wiley-Blackwell (2009)
5. Immunology and evolution of Infectious diseases by Steven Frank, Princeton University Press (2002)
6. Microbiology by Bernard D. Davis, Renato Dulbecco, Herman N. Eisen and Harold S. Ginsberg. Publisher: Lippincott Williams & Wilkins (1990)

BT 303: Genetic Engineering**Text books:**

1. Gene Cloning & DNA Analysis: An Introduction by T.A. Brown. Pub Blackwell (2001)
2. Principles of Gene Manipulation & Genomics by Primrose & Twyman. VII (2006)

Reference books:

1. Molecular Cloning: A Laboratory Manual (3 Volume Set) by J. Sambrook and David W. Russel. Third edition Pub: Cold Spring Harbor Laboratory Press (2001)
2. Molecular Biotechnology: Principles and Applications of Recombinant DNA by B.R. Glick and J.J. Pasternak. Publisher: ASM Press (2003)
3. Genetic Engineering by S. Rastogi and N. Pathak. Pub: Oxford University Press (2009)
4. Recombinant DNA by J.D. Watson et al. Publisher: W.H. Freeman and Company (2007)

BT 304 : Biological Engineering Principles**Text books:**

1. Basic principles and calculations of Chemical Engineering by D.M. Himmelblau. Publisher: Prentice Hall.(1974)
2. Basic principles of Chemical Engineering by E.I. Shaheen Publisher: Houghton Mifflin (1975)

Reference books:

1. Chemical Process Control, an introduction to theory and practice by G.Stephanopoulos. Publisher: Prentice Hall Inc (1984)
2. Chemical reaction engineering by O.Levenspiel. Pub: John Wiley and sons (1999)
3. Coulson's and Richardson's Chemical Engineering by J.F. Richardson and D.G. Peacock. Publisher: Asian books (1994)
4. Elementary principles of Chemical Processes by R.M.Felder and R.W. Rousseau. Publisher: John Wiley and sons Inc (2005)
5. Fundamentals of Chemical Reaction Engineering by C.D.Holland and R.G. Anthony. Publisher: Prentice Hall Inc. (1989)

BT 305 : Structural Biology**Text books:**

1. Essentials of Molecular Biology by G.M. Malacinski and D. Freifelder. Publisher: Jones and Bartlett Publications 4th edition (2003).
2. Biochemistry by Donald Voet and Judith Voet. Pub: John Wiley & Sons 4th edition (2010).

Reference books:

1. D. Metzler Biochemistry: The Chemical Reactions of Living Cells by Metzler, David E.; Metzler, Carol M.; Sauke, David J Publisher: Academic Press (2001).
2. Genes IX by B. Lewin. Publisher: Jones & Bartlett (2008).
3. Introduction to Protein Architecture: The Structural Biology of Proteins by A.M. Lesk. Publisher: Oxford University Press (2000).

4. Introduction to Protein Structure by C. Branden and J. Tooze. Publisher: Garland Publishing Company (1998).

B.Tech. (Biotechnology) : III Year : VI Semester

BT 311 : Plant Biotechnology

Text books:

1. An Introduction to Plant Tissue Culture by M.K. Razdan. Publisher: Oxford and IBH Publishing (2010)
2. Introduction to Plant Biotechnology by H. S. Chawla Publisher: Oxford and IBH Publishing (2009)

Reference books:

1. Plant Cell Tissue and Organ Culture by O.L Gamborg and G.C. Phillips. Publishers: Narosa Publications (1995)
2. Genetic Engineering by S. Rastogi and N. Pathak. Publisher: Oxford University
3. Plant Biotechnology by Slater. Publisher: Oxford University Press (2003)

BT 312 : Animal Biotechnology

Text books:

1. Animal Cell Culture Techniques by M. Clynes. Publisher: Springer Verlag. (1998)
2. Methods in Cell Biology - Animal Cell Culture Methods by J.P. Mather and D. Barnes. Publisher: Academic Press (1998)

Reference books:

1. Gene cloning & DNA Analysis: An introduction by T A Brown, Fourth edi (2001)
2. Genetic Engineering by S. Rastogi and N. Pathak. Publishers: Oxford University
3. Principles of Gene Manipulation & Genomics by Primrose & Twyman. VII edition (2006)
3. Animal Biotechnology: Identifying Science-Based Concerns by Debra Davis(2002)
4. Methods of Tissue Engineering by Anthony Atala and Robert P. Lanza. (2001)
5. Animal Cell Biotechnology: Methods and Protocols by Nigel Jenkins.(1999)
6. Transgenic Animal Technology: A Laboratory Handbook by Carl A Pinkert

BT 313 : Fundamentals of Biochemical Engineering

Text books:

1. Biochemical Engineering Fundamentals by J.E. Baily and D.F. Ollis. Pub:McGraw Hill. (1986)
2. Experimental Process Biotechnology Protocols by S.N. Mukhopadhyay. Viva Books, N Delhi (2007)

Reference books:

1. Bioreaction engineering principles by J. Nielson and J. Villadsen. Pub: Plenum Press (1994).
2. Chemical Engineering Design: Fourth edition by J.M. Coulson and J.F. Richardson. Publisher: Butterworth Heinemann (2005).
3. Bioprocess Engineering - Kinetics, Mass transport, reactors and gene expression by W.R. Veith. Publisher: John Wiley and Sons Inc. (1994)
4. Bioprocess Engineering Basic Concepts by M.L. Shuler and F. Kargi. Pub: Prentice Hall (1987).
5. Bioprocess Engineering Principles by P. Doran. Publisher- Academic Press (1995).
6. Transport Phenomena by R. B. Bird et al., 2nd Edition, Wiley, (2006).
7. Biochemical Engineering by S. Aiba, A.E. Humphry and N.F. Millis. Pub: University of Tokyo Press (1973).

BT 314 : Database Management Systems

Text books:

1. Principles of Database and Knowledge Based Systems by J.D. Ullman. Pub: Computer Science Press. (1989)
2. Elmasri, Navathe, "Fundamentals of Database systems", Addison Wesley
3. Introduction to Data base Systems by C.J. Date. Publisher Addison Wesley Publishing (2003)

4. Data Mining: Concept and Techniques by J. Han and M. Kamber. Publisher: Morgan Kaufman. (2001)

Reference books:

1. Database Management system by R. Ramakrishnan. Tata McGraw- Hill Publisher. (2003)
2. The Data Warehouse Lifecycle Toolkit. Ralph Kimball, Margy Ross, Warren Thornthwaite, Joy Mundy, Bob Becker Publisher: John Wiley and Sons Inc. (2008)
3. The Data Warehouse Toolkit by R. Kimball et al. Publisher: John Wiley and Sons Inc.(1996)
4. Data Mining Techniques by A.K. Pujari. Publisher: Sangam Books Ltd. (2010)

BT 315 : Genomics & Proteomics

Text books:

1. Bioinformatics: A practical guide to the analysis of genes and proteins by AD. Baxevanis and B.F.F. Ouellette. Publisher: John Wiley and Sons Inc. (2005).
2. Bioinformatics: From Genomes to Drugs by T. Lengauer. Pub: John Wiley and Sons (2001).

Reference books:

1. Bioinformatics: Sequence and Genome Analysis by D.W. Mount. Publisher: CBS (2003).
2. Essentials of Genomics and Bioinformatics by C. W. Sensen. Pub: John Wiley and Sons (2002).
3. Functional Genomics - A Practical Approach by S. P. Hunt and R. Livesey. Publisher: Oxford
4. Proteomics: From Protein Sequence to Function by S. Pennington and M.J. Dunn. Publisher: Springer Verlag (2001).

B.Tech. (Biotechnology) : IV Year : VII Semester

BT 401 : Computational Biology – I

Text books:

1. Introduction to Bioinformatics – Teresa Atwood and David J.Parry, Pearson Smith publication 1st edition (2003).
2. Fundamental Concepts of Bioinformatics - Dan E. Krane, Michael L. Raymer, Pearson education First edition (2004).

Reference books:

1. Sequence structure and Database – Des Higgins, Willice Taylor, oxford press 1st edition (2003).
2. Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins, by Andreas (2005).
3. D. Baxevanis, B. F. Francis Ouellette, Wiley-Interscience, 3rd Edition, (2004).
4. Sequence and Genome Analysis by David W. Mount - Cold Spring Harbor Laboratory 1st edition; 2004.

BT 402 : Bioprocess Technology & Downstream Processing

Text books:

1. Industrial Microbiology by Casida. Publisher: New Age International (2003).
2. Biotechnology. A Textbook of Industrial Microbiology by W. Crueger and A.Crueger (1990).

Reference books:

1. Bioprocess Engineering Basic Concepts by M.L. Shuler and F. Kargi. Pub: Prentice Hall (1987).
2. Biochemical Engineering Fundamentals by J.E. Baily and D.F. Ollis. Publisher: McGraw Hill 2nd edition (1986).
3. Product Recovery in Bioprocess Technology, BIOTOL Series. Pub: Butterworth Heinmann (1992).
4. Separation processes in Biotechnology by J.M. Asenjo. Publisher: Marcel Dekker Inc. (2008)
5. Bioseparations Science and Engineering by Roger Harrison et al. Pub: Oxford University
6. Prescott and Dunn's Industrial Microbiology by G. Reed. Pub: Chapman & Hall (1981).
7. Principles of Fermentation Technology by P.F. Stanbury, A. Whitaker and S.J. Hall. Publisher: Butterworth-Heinemann (1999).

8. Bioseparations-Downstream Processing for Biotechnology by P.A. Belter, E.L. Cussler and Wei-Shou Hu. Publisher: Wiley – Interscience 1st edition (1988).
9. Protein Purification: Principles and Practice by R.K. Scopes, Pub: Springer (1982).
10. Protein Purification Methods by E.L.V. Harris and S. Angal. Publisher: IRL Press at Oxford University Press (1989).

BT 411 : Computational Biology – II

Text books:

1. Algorithms on Strings, Trees, and Sequences: Computer Science and Computational Biology by D. Gusfield. Publisher: Cambridge University Press (1997).
- 2 Bioinformatics: A Practical Guide to the Analysis of Genes and Proteins AD Baxevanis and B.F.F. Ouellette. Publisher: Wiley-Interscience (2005).

Reference books:

1. Biocomputing hypertext course book at <http://www.techfak.unibielefeld.de/dcd/curric/welcome.html/>.
2. Bioinformatics: Sequence and Genome Analysis by D.W. Mount. Publisher: CBS (2003).
3. Computational Modeling of Genetic and Biochemical Networks by J.M. Bower and H. Bolouri. Publisher: MIT Press (2001).
4. Computational Molecular Biology: An Algorithmic Approach by P. A. Pevzner. Publisher: MIT Press (2000).

B.Tech. (Biotechnology) : IV Year : VIII Semester

BT 403 : Elective – I

1. Thermodynamics of Biological Systems

Text books:

1. Bioenergetics by A.L. Lehninger. Publisher: W.A. Benjamin Inc. (1965).
2. Biological Thermodynamics by D.T. Haynie. Publisher: Cambridge University Press (2001).

Reference books:

1. Biophysical Chemistry by CR. Cantor and P.R. Schimmel. Publisher: Freeman. (1980).
2. Thermodynamics and Kinetics for the Biological Sciences by G.G. Hammes. Publisher: John Wiley and Sons Inc. (2000).

2. Pharmaceutical Chemistry

Text books:

1. Medicinal Chemistry: An introduction by G. Thomas. Publisher: John Wiley and Sons (2000).
2. Medicinal Chemistry: The Role of Organic Chemistry in Drug Research by C. R.Ganellin and S. M. Roberts. Publisher: Academic Press (1993).

Reference books:

1. Ansel's Pharmaceutical Dosage Forms and Drug Delivery Systems by H.C. Ansel, L. V Allien, N.G. Popovich. Publisher: Lippincott Williams and Wilkins Publishers (1999).
2. Review of Organic Functional Groups: Introduction to Medicinal Organic Chemistry by TL. Lemke. Publisher: Lippincott Williams & Wilkins, 4th edition (2003).

3. Current Topics in Biotechnology

Text books:

1. Essentials of Stem Cell Biology by Robert Lanza et al. Publisher: Elsevier Academic Press, 2nd edition (2009).
2. Nanotechnology: Science, Innovations and Opportunity- Lynn Foster. Pub: Prentice Hall (2005).

Reference books:

1. Textbook of Molecular Medicine by Jameson J.L. Publisher: Blackwell Science Inc. (1997).

2. Pharmacogenetics by Wendell Weber. Publisher: Oxford University Press (1997).

4. Drug Delivery Systems

Text books:

1. Drug Delivery and Targeting by A.M. Hillery, A.W. Lloyd and J. Swabrick. Publisher: Taylor & Francis (2001).
2. Drug Delivery: Engineering Principles for Drug Therapy (Topics in Chemical Engineering) by W.M. Saltzman. Publisher: Oxford University Press (2001).

Reference books:

1. Handbook of Biodegradable Polymers (Drug Targeting and Delivery) by A. J. Domb, J. Kost and D.M. Wiseman. Publisher: Dunitz Martin Ltd. (1998).
2. Pharmaceutical Dosage Forms and Drug Delivery Systems by H.C. Ansel, L.V. Allen and NG. Popovich. Publisher: Lippincott Williams and Wilkins (2010).

Open Elective – I

BT 404 : Elective – II

1. Biomechanics

Text books:

1. Biomechanics: Mechanical Properties of Living Tissues by Y C Fung, second edition. Publisher: Springer (1993).
2. Principles of Mechanics and Biomechanics by Frank Bell. Publisher: Stanley Thorne Ltd. (1998).

Reference books:

1. Biomechanics by Alexander R Mc Neill. Publisher: Chapman and Hall (1975).
2. Fundamentals of Biomechanics-equilibrium, motion and deformation by Nihat Ozkaya and Margarita Nordin, 2nd edition. Publisher: Springer-Verlag (1999).
3. Biomechanics Principles and applications by Donald R. Peterson and Joseph D. Bronzino. Publisher: CRC Press, Taylor & Francis Group, LLC (2008).
4. Biomechanics of Medical Devices by D.N. Ghista. Publisher: Marcel Dekker (1982).
5. Fundamentals of Biomechanics by Duane Knudson, Second Edition. Pub: Springer (2007).

2. Biofuels

Text books:

1. Biofuels Engineering Process Technology by Caye Drapcho, John Nghiem and Terry Walker. Publisher: McGraw-Hill (2008).
- Biofuels: Biotechnology, Chemistry, and Sustainable Development **by** David M. Mousdale. Publisher: CRC Press (2008).

Reference books:

1. Introduction to Biofuels by David M. Mousdale. Publisher: CRC Press (2010).
2. Biomass to Biofuels: Strategies for Global Industries edited by Alain Vert Nasib Qureshi, Hideaki Yukawa and Hans P. Blaschek. Publisher: Wiley (2010).
3. Biorenewable Resources: Engineering New Products from Agriculture by Robert C. Brown. Publisher: Iowa State Press (2003).

3. Nanobiotechnology

Text books:

1. Engines of Creation by K E Drexler. Publisher: Oxford, New York (1986).
2. Nanosystems: Molecular Machinery, Manufacturing and Computation by K E Drexler. Publisher: Wiley (1992).

Reference books:

1. Our Molecular Future: How Nanotechnology, Robotics, Genetics and Artificial Intelligence Will Transform the World by Mullhall D. Publisher: Prometheus (2002).
2. Web Resources: www.nanotechweb.org; www.nano.gov; www.nanotec.org.uk.

4. Biosensors**Text books:**

1. Affinity Biosensors: Techniques and Protocols by K.R. Rogers and A. Mulchandani. Publisher: Humana Press (1998).
2. Biosensors and their Applications by V.C. Yang and T.T. Ngo. Publisher: Springer (2000).

Reference books:

1. Chemical Sensors and Biosensors by B.R. Eggins. Publisher: John Wiley and Sons Inc. (2002).
2. Sensors and Sensing in Biology and Engineering by F.G. Barth, et al. Publisher: Springer Verlag (2003).
3. Bioinstrumentation and Biosensors by D.L. Wise. Publisher: Marcel Dekker (1991).
4. Process Biotechnology Fundamentals by S N Mukhopadhyay. Publisher: Viva Books Pvt. Ltd., New Delhi (2010).

Elective – II**BT 412 : Elective – II****1. Drug Design and Development****Text books:**

1. Introduction to Biophysical Methods for Protein and Nucleic Acid Research by J.A. Glasel and M.P. Deutscher. Publisher: Academic Press (1995).
2. Principles of Drug Action by W.B. Pratt and P. Taylor. Publisher: Churchill Livingstone (1990).

Reference books:

1. Principles of Medicinal Chemistry by W.O. Foye T.L. Lemke, and D.A. Williams. Publisher: Williams and Wilkins (1988).
2. Side Effects and Drug Design by B.J. Lien. Publisher: Marcel Dekker (1987).
3. The Anticancer Drugs by W.B. Pratt, R.W. Ruddon, W.D. Ensminger, and J. Maybourn. Oxford University Press (1994).

2. Pharmacogenomics and Personalized Medicine**Text books:**

1. Pharmacogenomics: The Search for the Individualized Therapies by Licinio, Julio and Ma-Li Wong. Publisher: Wiley-VCH (2002).
2. Pharmacogenomics: An Approach to New Drugs Development by Chakrabarthy, Chiranjib and Bhattacharyya, Atane (2004).

Reference books:

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