

Course Curriculum
(Course Structure and Syllabi)
for
Bachelor Programme
(B.Arch.)
First Year



राष्ट्रीय प्रौद्योगिकी संस्थान हमीरपुर

हमीरपुर – 177 005 (भारत)

National Institute of Technology Hamirpur

Hamirpur – 177 005 (India)

<http://www.nith.ac.in>

Preface

Located in Hamirpur district of Himachal Pradesh, NIT Hamirpur enjoys a really scenic environment and pleasant weather. The Institute was established in the year 1986, as REC Hamirpur, converted as NIT Hamirpur in 2002 and declared as the Institute of National Importance in 2007. The Institute awards Bachelor, Master and Doctoral degrees in Engineering, Sciences, Humanities & Social Sciences, Architecture and Management; fostering the spirit of national integration amongst the students, a close interaction with industry and a strong emphasis on research. At present, the Institute offers four years B.Tech. degree in Civil Engineering, Computer Science & Engineering, Electrical Engineering, Electronics & Communication Engineering, Mechanical Engineering, Chemical Engineering and Material Science & Engineering, and a five years B.Arch. degree. The Institute has also introduced five years Dual Degree leading to Bachelor and Master of Technology in Computer Science & Engineering and Electronics & Communication Engineering. The Institute also offers M.Tech./M.Arch./M.Sc./MBA programmes with various specializations.

The Bachelor programmes of NIT Hamirpur are governed by the Ordinances for Bachelor Programmes which is available on the Institute website for the information of students and other stakeholders. First year students are advised to get fully familiar with the academic system of the Institute and provisions contained in these Ordinances. These provisions govern the policies and procedures on the admission of students, registration for courses, imparting instructions of courses, conducting examinations, evaluation, award of degree based upon performance of the students, etc. Further, students are advised to read few important points mentioned in the Ordinances like change of branch, evaluation and grading system of the Institute, minimum attendance requirement, etc. Moreover, NIT Hamirpur believes that duty, decorum and discipline are the trademarks of a good student, therefore, students are advised to read conduct and discipline rules in the Ordinances carefully and conduct themselves within and outside the precincts of the Institute in a manner befitting the students of an Institute of National Importance.

Students are also advised to go through the Academic Calendar available on the Institute website. The Academic Calendar mentions of the dates of all the important events, such as Admission, Registration, Commencement & End of the Classes, Examinations & Evaluation, Submissions of Grades, Mid-semester/Summer/Winter Breaks, etc., during the Academic Session of the Institute.

A number of Stipends, Scholarships, Endowment Scholarships/Fellowships, etc. are also awarded to the Bachelor students according to the rules and procedures laid down by the awarding agencies and/or Institute from time to time. Further, to promote and recognize academic excellence, constructive leadership and overall growth and development of students, the Senate may award a number of Prizes and Medals, established by the Institute on its own or through endowments/grants made by donors, with the approval of the Board of Governors.

It is in the interest of the student that he/she should be fully familiar with the course curriculum, academic system of the Institute and provisions contained in Bachelor Ordinances.

Director's Message

Greetings and a warm welcome to all the new entrants for joining us at National Institute of Technology Hamirpur. Congratulations for selecting National Institute of Technology Hamirpur, for your further studies and college experience. NIT Hamirpur is one of the premier autonomous Institution of National Importance in Northern India under the Act of Parliament-2007. It is a state of art Institution and a dream destination for those who wish to be leaders in Science and Technology. Besides being recognized nationally and internationally for excellent education at undergraduate level, we are also making wide strides in innovative research and other development activities. Being a National Level Institute, we have a unique group of outstanding young minds from almost all corners of the country.



Students from diverse backgrounds get to network with each other and get to identify and comprehend the wide spectrum of varied cultural and regional practices in our country. Students are not only given exposure to the latest technological advances in their chosen field but also trained to be responsible citizens of our country. The rich and unique learning environment at NIT Hamirpur develops the student physically, intellectually and emotionally. A series of activities such as cultural festival, technical festival, industry-focused seminars and extracurricular activities, open them to challenges of leadership. We not only enable our students to fulfill their dreams but also mentor them to think Big. During their tenure at the Institute, the students are given enriching and life-defining experience that enables them to reach new heights in their professional and personal lives.

The Institution has a team of highly qualified, learned and dedicated faculty with expertise in all major disciplines of engineering and technology, architecture, science and management, and is a constant source of inspiration for the students. They are actively involved in raising the standards of not only our Institute but also other institutions by collaborating with them and by sharing knowledge through faculty/student interaction programmes from time to time.

Once again, I wish all the students an outstanding, momentous and valuable stay at NIT Hamirpur and hope that you achieve your destinations/goals and emerge as top-notch engineers, technocrats, educationists or scientists.

With warm wishes

Prof. Vinod Yadava
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उद्यमेन हि सिध्यन्ति कार्याणि न मनोरथैः

परिश्रम करने से ही सारे कार्य सिध हो सकते हैं केवल इच्छाओं से नहीं

Institute Vision

To build a vibrant multicultural learning environment founded on value based academic principles, wherein all involved shall contribute effectively, efficiently and responsibly to the national and global community.

Institute Mission

- To achieve academic excellence in engineering, technology, architecture and science by imparting quality and value based education.
- To inspire our students to become responsible citizens and competent professionals with high ethical values.
- To meet the expectations of technical human resource at national and international level.

Objectives of Bachelor and Dual Degree Programmes

The objectives of the Bachelor/Dual Degree Programmes at the National Institute of Technology Hamirpur are as follows:

- To cultivate high standards of performance in teaching and research
- To develop the scientific, engineering and managerial manpower of the highest quality to cater to the needs of the industry, R&D organizations and academia
- To provide opportunity to students to do research in cutting edge areas
- To be a role model and leader of educational institutions in the country
- To provide a broad grasp of the fundamental principles of the scientific, technological and managerial methods through its curriculum
- To provide a deep understanding of the specific areas of specialization
- To provide an innovative ability to solve new and open problems
- To provide a capacity to learn continually and interact with multi-disciplinary groups
- To develop the students with a capability for free and objective enquiry, courage and integrity, awareness and sensitivity to the needs and aspirations of society and doing independent research in their chosen areas

With above objectives in mind, the course curriculum of Bachelor/Dual Degree Programmes is designed to include components like theory and practical course works, seminars and projects, through which a student can develop his/her concepts and intellectual skills.

Bachelor Programmes

Bachelor of Technology (B.Tech.): 4 Years (8 Semesters)

Branch

Chemical Engineering
Civil Engineering
Computer Science & Engineering
Electrical Engineering
Electronics & Communication Engineering
Materials Science & Engineering
Mechanical Engineering

Department

Chemical Engineering
Civil Engineering
Computer Science & Engineering
Electrical Engineering
Electronics & Communication Engineering
Material Science & Engineering
Mechanical Engineering

Bachelor of Architecture (B.Arch.): 5 Years (10 Semesters)

Branch

Architecture

Department

Architecture

Dual Degree Programmes

Dual Degree (B.Tech. & M.Tech.): 5 Years (10 Semesters)

Branch

Computer Science & Engineering
Electronics & Communication Engineering

Department

Computer Science & Engineering
Electronics & Communication Engineering

First Year													
1 st Semester							2 nd Semester						
SN	Code	Subject	L	T	P/D	Credits	SN	Code	Subject	L	T	P/D	Credits
1	AR-111	Architectural Design-I	3	0	5	6	1	AR-121	Architectural Design-II	3	0	5	6
2	AR-112	Building Construction & Materials-I	2	0	4	4	2	AR-122	Building Construction & Materials-II	2	0	4	4
3	AR-113	History of Architecture-I	3	1	0	4	3	AR-123	History of Architecture-II	3	1	0	4
4	AR-114	Architectural Drawing & Graphics-I	2	0	4	4	4	AR-124	Architectural Drawing & Graphics-II	2	0	4	4
5	AR-115	Disaster Management	3	1	0	4	5	AR-125	Architectural Workshop	1	0	3	3
6	MA-116	Architectural Mathematics	3	1	0	4	6	HS-126	Communication Skills	2	1	2	4
		Total	Hours = 32			26			Total	Hours = 33			25

Course Name: **Architectural Design-I**
 Course Code: **AR-111**
 Course Type: **Core**

Contact Hours/Week: **3L + 5D**

Course Credits: **06**

Course Objective

To Train the students in visual compositions by using various elements of Design and to make them familiar with the meaning and purpose of Architectural design

Unit Number	Course Content	Lectures
UNIT-01	Study of distinctive aspects of Architecture, inter-linkages between Architecture, Nature and Culture, unique aspects of Architectural profession, Requirements and qualities of a student of architecture.	06L
UNIT-02	Introduction to the Concept of design in everyday life, Objectives of design, Elements of design such as point- Line- Form- Space- Texture- Colour etc. Detailed study of color theory and its applications through geometric compositions. Principles of design such as Scale- Balance- Proportion- Rhythm- Harmony- Contrast- etc. Application of the same through exercises in two and three dimensional compositions; using single and multiple types of elements.	12L
UNIT-03	Introduction to Anthropology, Anthropometric data for adults& children: Standing position front & side- Arms extended- various seating positions-various working positions.	09L
UNIT-04	Habitable space such as Living Room, Dining Room, Bedroom, Kitchen&Toilet with furniture layout 1. Planning and Design considerations 2. Design Process	09L

Course Outcomes

Upon successful completion of the course, the students will be able to

CO1: Introducing the basics of Architectural profession

CO2: Describe the process of design

CO3: Learn the various human dimensions and its applications

CO4: Application of the process of design

Books and References

1. Design through Discovery by M.E. Bevin, Harcourt Brace College Publishers, University of Wisconsin, 1994.
2. Drawing and Perceiving by Douglas Cooper, John Wiley & Sons, New York, 2007.
3. Principles of Design in Architecture by K.W. Smithies, Van Nostrand Reinhold, New York, 1981.
4. Architectural Drawing Masterclass by Tom Porter, Charles Scribner's, London, 1993.
5. Time-Saver Standards for Architectural Design: Technical Data for Professional Practice by Michael J. Crosbie and Donald Watson, McGraw-Hill, New York, 2005.
6. Time Saver Standards for Building Types by Joseph De Chiara and Michael J. Crosbie, McGraw-Hill, New York, 2001.
7. Architectural Graphic Standards by Charles George Ramsey, Harold Reeve Sleeper, Bruce Bassler John Wiley & Sons, New York, 2008.
8. Form Space & Order by Francis DK Ching, John Wiley & Sons, New Jersey, 2015.

Course Name: Building Construction and Materials-I		
Course Code: AR-112		
Course Type: Core		
Contact Hours/Week: 2L + 4D		Course Credits: 04
Course Objective		
To familiarize the students with basic building materials and their construction details		
Unit Number	Course Content	Lectures
UNIT-01	Behavioral characteristics and applications of basic building materials- brick, stone, lime, cement, sand: Application, properties and defects. Building components- wall, floor, roof and foundation Construction terminology through typical section.	06L
UNIT-02	Stones- Process of rock formation, types, properties, applications etc. Bricks – Constituents and properties of soil, manufacturing, types, sizes, properties and uses.	06L
UNIT-03	Building construction techniques in brick and stone masonry Various types of bonding in walls such as Stretcher bond-English bond-Single & Double Flemish bond etc. These bonds are to be explained with respect to varying wall thickness such as ½ brick-1 brick- 1½ brick etc. and various types of junctions such as L junction- T junction- Cross junction etc. Stone masonry of various types such as Rubble walling, Polygonal walling, Flint walling, Ashlars walling, Masonry joints, Maintenance etc.	12L
Course Outcomes		
Upon successful completion of the course, the students will be able to		
CO1: Study of building materials.		
CO2: Understand the Constituents, properties and Manufacturing process of building materials		
CO3: Learn to draw brick masonry and stone masonry		
Books and References		
1. Building Construction by Sushil Kumar, Standard Publishers Distributors, New Delhi, 2006.		
2. Building Construction Metric Vol. 1-2 by W.B.Mckay, Orient Longman Private Limited, Mumbai, 2006.		
3. Building Construction Illustrated by Francis D.K. Ching, John Wiley & Sons, New York, 2011.		
4. Construction Technology, Vol. 1 by Roy Chudley, Roger Greeno, Prentice Hall, London, 2005.		
5. Appropriate Building Materials by Roland Stulz and Kiran Mukerji, SKAT, 1993.		
6. A Textbook of Building Construction by S.P. Arora and S.P. Bindra, Dhanpat Rai & Sons, Delhi, 1996.		

Course Name: **History of Architecture-I**
 Course Code: **AR-113**
 Course Type: **Core**

Contact Hours/Week: **3L + 1T**

Course Credits: **04**

Course Objective

To understand evolution and development of architectural and urban built environment in context to geophysical, social and technological factors

Unit Number	Course Content	Lectures
UNIT-01	Introduction to Indus Valley civilization. Study of architectural characteristics. Introduction to the Vedic village. Study of its building typology and construction.	06L
UNIT-02	Introduction to Buddhist settlement in India. Detailed studies of Architectural characteristics of various building types such as Stupas, Chaityas and Viharas through suitable examples from each geographical context to illustrate differences in Form, Construction methods and Ornamentation.	06L
UNIT-03	Study of evolution of Hindu architecture, Rock-cut and structural forms and comparison of Temple forms in various regions of India. Study of various styles of temples such as Dravidian, Indo-Aryan Orissan, Jain with respect to functional components, architectural Form, construction and ornamentation.	12L
UNIT-04	Delhi or Imperial Style :Slave, Khilji, Tughlaq, Sayyed, Lodhi Provincial Style Bengal , Jaunpur, Deccan, Malwa, Bijapur Moghul Architecture in North India under : Humayun, Jehangir, Akbar, Shahjehan	12L

Course Outcomes

Upon successful completion of the course, the students will be able to

CO1: Understand the architectural characteristics of Indus Valley civilization and Vedic village

CO2: Understand the architectural characteristics of Buddhist settlement in India

CO3: Understand the evolution of Hindu architecture

CO4: Understand various architectural styles

Books and References

1. Architecture in India by Marilia Albanese, Sandeep Prakashan, Indore, 2001.
2. Hindu India by Henri Stierlin, Taschen, Cologne, 1998.
3. Ancient Indian Architecture by Sanjeev Maheshwari and Rajeev Garg, CBS Publishers & Distributors, Delhi, 2001.
4. The Hindu Temple by R. Champakalakshmi and Usha Kris, Roli Books, Delhi, 2000.
5. The Architecture of India: Buddhist and Hindu by Satish Grover, Vikas Publishing House Pvt. Ltd, India, 1980.
6. Islamic Architecture in India by Satish Grover, Galgotia Publishing Company, Delhi, 1996.

Course Name: Architectural Drawing and Graphics-I		
Course Code: AR-114		
Course Type: Core		
Contact Hours/Week: 2L + 4D		Course Credits: 04
Course Objective		
To familiarize the student with basic knowledge of drafting, lettering techniques and visualization of geometric forms		
Unit Number	Course Content	Lectures
UNIT-01	Significance and Scope, Usage of Drawing Instruments, Dimensions, Scales, Free hand Lettering, Line types such as Elevation lines- Construction lines – Section lines – Hidden lines – Centre lines Introduction to pencils with different grades such as F, H, HB, 2B, 4B and 6B. Representation of the different lines created by the different pencils by varying thick-Ness and pressure. Representation of various textures with thick, thin and flat pencils Strokes. Illustrative examples to be followed explaining the various techniques.	04L
UNIT-02	Introduction to Orthographic projections, First angle projection Projection of line parallel to both reference planes / parallel to one and inclined to other reference plane / inclined to both the reference planes followed by illustrative examples in each case Projection of plane parallel to VP / parallel to HP / perpendicular to VP and inclined to HP / perpendicular to HP and inclined to VP / inclined to both HP and VP followed by illustrative examples in each case. Introduction to solids bounded by plane surfaces such as prisms / pyramids and solids of revolution such as cylinders / cones, Projection of solids having axis perpendicular to one of the reference planes / axis parallel to either of the reference plane and incline to other reference plane / axis inclined to both the reference planes followed by illustrative examples in each case.	14L
UNIT-03	Introduction and Importance, Method of drawing, Sciography of points, lines, planes and solids followed by illustrative example in each case.	06L
Course Outcomes		
Upon successful completion of the course, the students will be able to		
CO1: Use of Drawing Instruments and pencils of various grades		
CO2: Learn to draw plan, front elevation and side elevations		
CO3: Learn to draw shades and shadows in plan, front elevation and side elevations		
Books and References		
1. A Textbook of Engineering Drawing by Prof. P.J. Shah, S. Chand Publishing, 2008.		
2. Engineering Drawing with an Introduction to AutoCAD by Dhananjay A. Jolhe, Tata McGraw Hill, 2007.		
3. Architectural Graphics by Francis D. K. Ching, Wiley; 5th Edition, 2009.		
4. Architectural Shades and Shadows by Henry McGoodwin, Nabu Press, 2010.		
5. Rendering with Pen and Ink by Robert W. Gill, Thames & Hudson Ltd., 1984.		
6. Architectural Drawing by Tom Porter, Hamlyn, 1990.		

Course Name: Disaster Management		
Course Code: AR-115		
Course Type: Core		
Contact Hours/Week: 3L + 1T		Course Credits: 04
Course Objective		
To let the students understand the type of natural disasters and its effects on structural and non-structural elements. To understand the mechanism involved in the management of disasters.		
Unit Number	Course Content	Lectures
UNIT-01	Ecosystem- natural and man-made ecosystem; Ecological principles; Concepts of Environmental Impact Analysis;	03L
UNIT-02	Introduction to Natural Disasters. Introduction to disaster management, Rules and Notification. Natural Disasters: Earthquakes, Floods, River Erosion, Cyclones Tsunami Landslides & Avalanches Forest Fires	06L
UNIT-03	Man induced Disasters: Introduction, Nuclear Disaster Chemical, Mine Disaster, Biological Disaster, Cyber Terrorism, and Environmental Disaster.	06L
UNIT-04	Planning for Disaster: Guidelines for disaster management of Floods, River Erosion, Cyclones Tsunami Landslides & Avalanches Forest Fires	12L
UNIT-05	Fire Service, Forecasting & Early Warning Communications & IT Co-ord. with Scientific Organizations Spatial Data Management, Risk Transfer Microfinance, Role of Corporate Role of NGOs Community Preparedness and Education Gender Issue Vulnerable Groups Urban Development Civil Defense Home Guards NCC,NSS,NYK Medical Preparedness, Public Awareness	09L
Course Outcomes		
Upon successful completion of the course, the students will be able to		
CO1: Understand Natural Disasters and concept of Disaster Management		
CO2: Understand the details of Man induced Disasters		
CO3: Learn the Planning process for Disaster Mitigation		
CO4: Learning the various details of Disaster Management		
Books and References		
1. Elements of Ecology by Thomas M. Smith and Robert Leo Smith, Pearson, 2014		
2. Disaster Management in the Hills by Dr. Satendra, Concept Publishing Company, 2003.		
3. Disaster Management by Harsh K. Gupta, Universities Press, 2003.		
4. Natural Hazards and Disaster Management: Vulnerability and Mitigation by R. B. Singh, Rawat, 2006.		
5. Disaster Risk Reduction in South Asia by Pardeep Sahni, Ariyabandu and Madhavi Malalgoda, PHI Learning, 2003.		

Course Name:	Architectural Mathematics	
Course Code:	MA-116	
Course Type:	Core	
Contact Hours/Week:	3L + 1T	Course Credits: 04
Course Objectives		
<ul style="list-style-type: none"> To understand matrix algebra and its applicability in different engineering fields. To incorporate the knowledge of differential and integral calculus to support their concurrent and subsequent architectural studies. To have the idea of Curve Tracing and Three Dimensional Geometry & its physical interpretation and applications. To introduce the fundamental concept of Spherical Trigonometry and its interpretation. 		
Unit Number	Course Content	Lectures
UNIT-01	Matrix Algebra Matrices, Related matrices, Complex matrices (Hermitian and skew-Hermitian matrices, Unitary matrix), Rank of a matrix, Gauss-Jordan method, Normal form of a matrix, Linear dependence and independence of vectors, Consistency of linear system of equations, Solution of linear system of equations, Characteristic equation, Eigen values, Eigen vectors, Properties of eigen values, Cayley-Hamilton theorem and its applications, Reduction to diagonal form, Quadratic form and their reduction to canonical form.	06L
UNIT-02	Differential Calculus Partial Differentiation and its geometrical interpretation, Homogeneous functions, Euler's theorem and its extension, Total differentials, Composite function, Jacobian, Taylor's and Maclaurin's infinite series, Indeterminate forms, Errors and increments, Maxima and minima of functions of two variables, Method of undetermined multipliers. Curve tracing.	09L
UNIT-03	Curve Tracing Asymptotes, Curves in Cartesian and Polar form, Standard curves- Cartesian & Polar curves, Parametric curves, standard Parametric curves	04L
UNIT-04	Three Dimensional Geometry Review: Line, plane, sphere, vectors. Tangent plane to sphere, cone, cylinder, Quadric surfaces-(Ellipsoids, Hyperboloid of one and two sheets, cone, elliptic paraboloid, hyperbolic paraboloid, cylinder) , surface of revolution, some standard surfaces of revolution.	06L
UNIT-05	Spherical Trigonometry Sections of spheres, great circles, spherical triangle and its properties, relations in angles and sides of spherical triangle, spherical right triangle.	05L
UNIT-06	Integral Calculus Double Integrals (Cartesian and Polar), Change of Order of Integration, Change of Variables, Applications of Double Integrals. Triple integrals, Change of Variables, Applications of Triple Integrals. Beta and Gamma functions.	06L
Course Outcomes		
Upon successful completion of the course, the student will be able to CO1: Understand and analyze the theoretical & practical aspects of matrices. CO2: Identify an appropriate technique to examine linear system of equations, behavior of series, extreme values of functions and interpret the line, surface and volume integrals. CO3: Learning the limitations, advantages and disadvantages of above mentioned topics. Formulate the problems on related topics and solve analytically. CO4: To apply the analytical techniques to express data through curves and three dimensional geometry. CO5: Apply the concepts of integral calculus in various architectural problems. CO6: Demonstrate the concepts through examples and applications.		
Books and References		
<ol style="list-style-type: none"> Advanced Engineering Mathematics: by Erwin Kreyszig, John Wiley and Sons, NC, New York. Advanced Engineering Mathematics: by C. R. Wylie & L. C. Barrett, McGraw Hill. Advanced Engineering Mathematics: by R K Jain and SRK Iyenger, Narosa Pub. House. Differential & Integral Calculus: by N. Piskunov, MIR Publications. 		

Course Name: Architectural Design-II		
Course Code: AR-121		
Course Type: Core		
Contact Hours/Week: 3L + 5D		Course Credits: 06
Course Objective		
To train the students in understanding the interdependence of form, function and structure in the process of Architectural design.		
Unit Number	Course Content	Lectures
UNIT-01	Concept of a load bearing structure	01L
UNIT-02	Building Type: load bearing structure- Check Post, Post-Office etc. 1. Planning and Design considerations 2. Design Process	17L
UNIT-03	Building Type: load bearing structure- Bank, Crèche, Dispensary etc. 1. Planning and Design considerations 2. Design Process	18L
Course Outcomes		
Upon successful completion of the course, the students will be able to		
CO1: Understand the working and design process of a Single storied load bearing structure		
Books and References		
1. Building drawing with an integrated approach to Built Environment by Shah, Kale and Patki, Tata McGraw-Hill Education, 2002.		
2. Site Design Graphics by Micheal S. Kendall, Van Nostrand Reinhold, New York, 1989.		
3. Architectural Graphics, by Francis D. K. Ching, John Wiley & Sons, New York, 2015.		
4. Time-Saver Standards for Architectural Design: Technical Data for Professional Practice by Michael J. Crosbie and Donald Watson, McGraw-Hill, New York, 2005.		
5. Time Saver Standards for Building Types by Joseph De Chiara and Michael J. Crosbie, McGraw-Hill, New York, 2001.		
6. Architectural Graphic Standards by Charles George Ramsey, Harold Reeve Sleeper, Bruce Bassler John Wiley & Sons, New York, 2008.		

Course Name: Building Construction and Materials-II		
Course Code: AR-122		
Course Type: Core		
Contact Hours/Week: 2L + 4D		Course Credits: 04
Course Objective		
<ul style="list-style-type: none"> To familiarize the students with use of timber in building construction. 		
Unit Number	Course Content	Lectures
UNIT-01	Behavioral characteristics and applications of Timber: Variety of Indian timbers, characteristics and suitability for different uses, defects and decay, seasoning and preservation; manufactured timber products and their applications.	06L
UNIT-02	Building construction techniques in timber doors and windows. Detailed drawings and construction details of Battened-Ledged-Braced doors, Battened-Braced-Framed doors, Flush doors etc. Introduction to various types of windows in Timber. Detailed drawings and construction details of Casement windows and Bay windows in Timber. Workshop practice for carpentry joints used in 2 and 3.	08L
UNIT-03	Building construction techniques in timber floors Introduction to the nature and characteristics of wood floors at ground and first floor level, its advantages & Limitations.	04L
UNIT-04	Building construction techniques in timber roofs Introduction to the nature and characteristics of wood construction-roofs, its advantages and Limitations. Detailed drawings and construction details of flat roof batten & tile and various types of sloping roofs in timber such as Lean to roofs, King Post truss and Queen Post truss using AC/CGI, Mangalore tiles & slates roof coverings.	06L
Course Outcomes		
Upon successful completion of the course, the students will be able to		
CO1: Introduction of Timber as a building material		
CO2: Understand the process of timber joinery and learn to draw timber details		
CO3: Understand the process of timber floor construction and learn to draw timber floors		
CO4: Understand the process of timber roof construction and learn to draw timber roofs		
Books and References		
1. Building Construction Handbook by Roy Chudley and Roger Greeno, Routledge, New York, 2013		
2. The Construction of Buildings, Vol. 1-2 by R Barry, Wiley, 2001.		
3. Building Construction Metric Vol. 3 by W.B. McKay, Orient Longman Private Limited, Mumbai, 2006.		
4. Building Construction Illustrated by Francis D.K. Ching, John Wiley & Sons, 2011.		
5. Construction Technology Vol. 1-4 by Roy Chudley and Roger Greeno, Prentice Hall (UK), 2005.		
6. Workshop Practice 2ndEd. by H.S. Bawa, Tata McGraw-Hill Education, 2009.		
7. Carpentry and Joinery by George Mitchell, Cengage Learning EMEA, 1995.		
8. Arco's complete woodworking handbook by Jeannette T. Adams, Arco Pub., 1981.		

Course Name: History of Architecture-II		
Course Code: AR-123		
Course Type: Core		
Contact Hours/Week: 3L + 1T		Course Credits: 04
Course Objective		
To understand evolution and development of architectural and urban built environment in context to geophysical, social and technological factors		
Unit Number	Course Content	Lectures
UNIT-01	Introduction to examples of early shelter, Stone Age as an expression of man's physical and spiritual needs. Introduction to Egyptian civilization. Study of local context and architectural characteristics of public buildings such as mastabas, pyramids and temples to be explained with examples.	12L
UNIT-02	Introduction to Mesopotamian civilization. Study of urban context and architecture of Public buildings such as Ziggurat of Ur city and Palace of Khorsabad. Introduction to Greek civilization. Architectural characteristics of typical civic spaces such as Agora, Acropolis, theatres. Systems of proportioning, Greek orders, optical corrections etc. through illustrative examples such as Parthenon etc.	12L
UNIT-03	Study of Roman town with respect to location, Architectural characteristics of typical civic spaces such as Forum, theatres etc. Detailed studies of monuments/temples of Roman period with reference to materials, construction systems, Roman orders through illustrative examples.	12L
Course Outcomes		
Upon successful completion of the course, the students will be able to		
CO1: Understand the architectural characteristics of Stone Age and Egyptian civilization		
CO2: Understand the architectural characteristics of Mesopotamian and Greek civilization		
CO3: Understand the architectural characteristics of Roman civilization		
Books and References		
1. The World of Architecture by Paul Holberton, Chancellor Press, 1997.		
2. A History of Architecture by Sir Banister Fletcher, CBS Publisher, 1999.		
3. A History of Architecture by Spiro Kostof, Oxford University Press, 1995.		
4. Encyclopedia of World Architecture by Henri Stierlin, Facts on File, 1978		
5. A Global History of Architecture, Mark M. Jarzombek, Vikramaditya Prakash and Francis D. K. Ching, John Wiley & Sons, 2011.		

Course Name: Architectural Drawing and Graphics-II		
Course Code: AR-124		
Course Type: Core		
Contact Hours/Week: 2L + 4D		Course Credits: 04
Course Objective		
To enable the students to have a better visualization/understanding of a three dimensional entity through Drawings: Sections-Metric views-Sciography and Sketching: Indoor-Outdoor.		
Unit Number	Course Content	Lectures
UNIT-01	Introduction and Importance of Sections, Method of drawing Sections in which Section plane parallel to VP and perpendicular to HP / parallel to HP and perpendicular to VP / perpendicular to VP and inclined to HP / perpendicular to HP and inclined to VP / inclined to both HP and VP followed by illustrative examples in each case, True shape of section / Virtual sections / Auxiliary inclined view followed by illustrative examples.	04L
UNIT-02	Introduction to Lines of intersection / Curves of intersection, Method of drawing intersection of prisms /pyramids / cylinders followed by illustrative examples, making presentation drawings of these intersecting solids through Sciography.	04L
UNIT-03	Introduction and Importance of Surface development, Method of drawing surface development for Tetrahedron / Cube / Octahedron / Dodecahedron / Icosahedrons / Truncated Tetrahedron / Truncated Cube	06L
UNIT-04	Introduction and Importance of Metric projections, Method of drawing Isometric projection / Axonometric projection / Elevation oblique projections followed by illustrative examples, Uses of these Metric Projections	04L
UNIT-05	Introduction to Object drawing / Indoor sketching and its importance, Method of sketching simple objects / composition of objects freehand in proportion using pencils of different grades / water colors showing light / shade / shadow followed by situational exercises. Introduction to outdoor sketching through basic exercises like sketching of trees and shrubs, sketching of simple buildings with special emphasis on background and foreground and sketching of human figures using pencil of different grades/ water colors showing light / shade / shadow followed by situational exercises.	06L
Course Outcomes		
Upon successful completion of the course, the students will be able to		
CO1: Learn to understand and draw sections of solids		
CO2: Learn to understand and draw intersection of solids		
CO3: Learn to understand and draw development of surfaces		
CO4: Learn to understand and draw metric projections		
CO5: Learn to understand and draw free hand sketching		
Books and References		
1. A Textbook of Engineering Drawing by Prof. P.J. Shah, S. Chand Publishing, 2008.		
2. Engineering Drawing by Dhananjay A. Jolhe, Tata McGraw Hill, 2007.		
3. Architectural Shades and Shadows by Henry McGoodwin, Nabu Press, 2010.		
4. Rendering with Pen and Ink by Robert W. Gill, Thames & Hudson Ltd., 1984.		
5. Architectural Drawing by Tom Porter, Hamlyn, 1990.		
6. Sketching the Concept by Harold Linton and Scott Sutton, Design Press, 1993.		
7. Drawing the Landscape by Chip Sullivan, John Wiley & Sons; 4th Edition, 2014.		
8. Time-Saver Standards for Architectural Design: Technical Data for Professional Practice by Michael J. Crosbie and Donald Watson, McGraw-Hill, New York, 2005.		

Course Name: Architectural Workshop		
Course Code: AR-125		
Course Type: Core		
Contact Hours/Week: 1L + 3P		Course Credits: 03
Course Objectives		
<ul style="list-style-type: none"> To provide skills for carpentry joints To provide skills for Model Making To enable the students to make brick masonry using various bonds To enable the students to make Sculptures 		
Unit Number	Course Content	Lectures
UNIT-01	Common tools used in carpentry shop	01L
UNIT-02	Carpentry machines, common accessories in carpentry	01L
UNIT-03	Details of carpentry joints	01L
UNIT-04	Materials used in model making	01L
UNIT-05	Site relief and modification	01L
UNIT-06	Method of finding surfaces and volumes of solids	01L
UNIT-07	Brick bonding theory - partition walls	01L
UNIT-08	Brick bonding theory - load bearing walls using English bond	01L
UNIT-09	Brick bonding theory - load bearing walls using Flemish bond	01L
UNIT-10	Building material- Plaster of Paris	01L
UNIT-11	Building material – Wiremesh	01L
UNIT-12	Building material - Thermocol/clay/any other material	01L
Practical No.	Contents of Practical	
1.	Preparing a carpentry joint- Tenon & Mortise joint	
2.	Preparing a carpentry joint- Dovetail joint	
3.	Preparing a carpentry joint- Butt joint	
4.	Practice of cutting various board such as sunboard, cardboard, plyboard etc. for use in model making	
5.	Preparing a model of contoured site	
6.	Surface development for making various solids	
7.	Construct a Header (1 brick thick) & Stretcher bond (half brick thick) wall using conventional burnt bricks	
8.	Construct a English bond wall of various thickness using conventional burnt bricks	
9.	Construct a Flemish bond wall of various thickness using conventional burnt bricks	
10.	Sculpture making using Plaster of Paris	
11.	Sculpture making using Wiremesh	
12.	Sculpture making using Thermocol/ clay/ any other material	
Course Outcomes		
Upon successful completion of the course, the students will be able to		
CO1: Learn to make carpentry joints		
CO2: Learn to make architectural models		
CO3: Understand use of bricks in various masonry bonds		
CO4: Learn to make Sculptures		
Books and References		
1. Introduction to Basic Manufacturing Processes and Workshop Technology by Rajender Singh, New Age International Pvt. Limited, Publishers, 2006.		
2. Barry's Introduction to Construction of Buildings by Stephen Emmitt and Christopher A. Gorse, Wiley-Blackwell, 2010.		
3. Time-Saver Standards for Architectural Design: Technical Data for Professional Practice by Michael J. Crosbie and Donald Watson, McGraw-Hill, New York, 2005.		
4. Building Materials by S.K.Duggal, New Age International Pvt. Limited, Publishers, 2012.		

Course Name: Communication Skills		
Course Code: HS-126		
Course Type: Core		
Contact Hours/Week: 2L + 1T + 2P		Course Credits: 04
Course Objectives		
<ul style="list-style-type: none"> • To develop independent perspective through critical thinking • To communicate their perspective in clear and correctly articulated language through LSRW skills • To instill a lifelong habit of language learning 		
Unit Number	Course Content	Lectures
UNIT-01	Introduction: Role of Effective Communication Skills for an Engineer, Theories of acquiring and learning English as a Second language, Challenges in learning language and means to overcome these.	02L
UNIT-02	Communication process: Types and modes of communication, Formal and Informal Communication, Process, Channels and levels of communication in Organizations , Intrapersonal and interpersonal communication, Common frame of reference and Context for effective communication, Verbal and Non verbal communication, Interpreting non-verbal communication, Barriers to effective communication	06L
UNIT-03	Effective Listening Skills: What does listening mean? Types of listening, Strategies for effective listening, Listening for specific purposes, Listening process and barriers to listening, Leadership and role of effective listening, Problems in comprehension and retention, note taking, Exposure to recorded audio/visual text for listening	02L
UNIT-04	Effective Speaking Skills Interviews and Group discussion: Telephonic and personal interviews, Pre-Interview planning SWOT analysis, Building self-confidence, Developing Emotional intelligence, Preparing for current topics, Group Discussion as an interviewing tool Public speaking: Become aware of personal speech habits and characteristics. Improving non-verbal cues, voice, diction and other mechanics of speech. Speech preparation and presentation techniques, Audience awareness and self-awareness, Cultivating poise and self-confidence. Presenting a variety of speeches (informative, persuasive, demonstrative, special occasion, etc.)	06L
UNIT-05	Reading Skills: Need and process, Approach to different reading materials, Purposes of reading, Different reading strategies: Skimming, Scanning Predicting, Inferring from the context Reading, Comprehension, Vocabulary expansion through reading	02L
UNIT-06	Writing Skills: Need and strategy, Developing Style of Writing, Role of appropriateness, brevity and clarity in writing, Cohesion and Coherence, Paragraph writing, Vocabulary building (roots, prefixes, suffixes) SOP, Resume/CV, Job applications Report writing: Importance of Technical Report Writing, Types of Reports, Objectivity in Report Writing, Collection of Data for Report writing	06L

Practical No.	Contents of Practical (activities based on language software Sky Pronunciation/others)
1.	Sky Pronunciation: Introduction to the Speech Sounds of English
2.	Sky Pronunciation: Syllable and Organs of Speech
3.	Sky Pronunciation: Vowel and Consonant Sounds
4.	Sky Pronunciation: Similar sounds and test
5.	Word Stress and Intonation using available software
6.	Listening and Comprehension using available software
7.	Listening to Native speakers of English language
8.	Watching short talks for learning effective presentation skills
9.	Presentation skills using technology enabled slides
10.	Just a Minute (JAM) Sessions
11.	Describing Objects/Situations/People
12.	Interview skills using available software/interview videos

Course Outcomes

Upon successful completion of the course, the students will be able to

CO1: Identify the importance of Communication Skills

CO2: Apply Critical Thinking to what they read, listen to and observe

CO3: Apply principles of effective LSRW Skills in professional and Social Communication

CO4: Assess the verbal and non-verbal messages effectively

Books and References

1. Business Communication Today by Bovee, Courtland, L., John V. Thill and Barbara E. Schatzman: Pearson Education: Delhi.
2. The Definitive Book of Body Language by Allan Pease and Barbara Pease. Manjul Publishing House: New Delhi.
3. Communication for Business by Shirley Taylor. Longman: New Delhi.
4. Technical Communication: Principles and Practice by Meenakshi Raman and Sangeeta Sharma. Oxford University Press: New Delhi.

Evaluation System for Theory and Laboratory/Practical Courses

B.Tech./B.Arch./Dual Degree Programmes

A. Theory Courses [Having Lecture (L)/Tutorial (T) Contact Hours]

SN	Component	Weightage
1.	Continuous Assessment (Based on performance in assignments/quizzes/tests/tutorials, etc.)	20%
2.	Mid Semester Examination	30% (1½ Hours)
3.	End Semester Examination	50% (03 Hours)

B. Practical Courses [Having Practical (P)/Drawing (D) Contact Hours]

SN	Component	Weightage
1.	Continuous Assessment (Based on quantity and quality of experiments/jobs, skills in handling equipment, performance in viva/tests, accuracy of outcomes/features, etc.)	60%
2.	End Semester Evaluation (Performance in practical/job/test/quiz/viva, etc.)	40%

C. Theory and Practical Courses (Engineering Workshop/Architectural Workshop/ Engineering Graphics)

SN	Component	Weightage
Continuous Evaluation		
1.	Continuous Assessment (Based on quantity and quality of experiments/jobs/drawings, skills in handling equipment, performance in viva/tests, accuracy of outcomes/features, etc.)	60%
End Semester Evaluation		
2.	Minor Practice Test (Written)	20% (01 Hour)
3.	End Semester Evaluation (Based on quality of job/drawing/project)	20% (03 Hours)

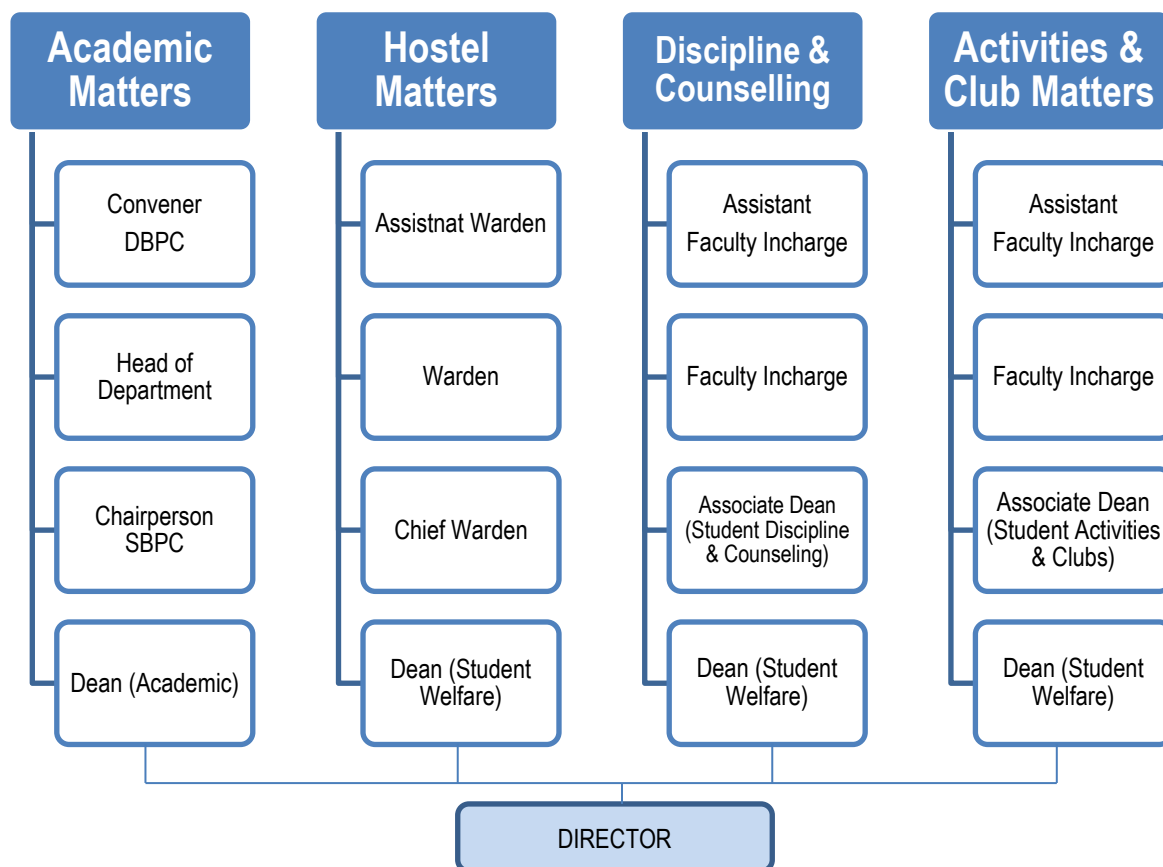
D. Theory and Practical Courses [Having Lecture (L)/Tutorial (T) and Practical (P)/Drawing (D) Contact Hours]

SN	Theory Component (Overall Weightage: 80%)		Practical Component (Overall Weightage: 20%)	
1.	Continuous Assessment (Based on performance in assignments/quizzes/tests/tutorials, etc.)	20%	Continuous Assessment (Based on quantity and quality of experiments/jobs, skills in handling equipment, performance in viva/tests, accuracy of outcomes/features, etc.)	60%
2.	Mid Semester Examination	30% (1½ Hours)	End Semester Evaluation (Performance in practical/job/test/quiz/viva, etc.)	40%
3.	End Semester Examination	50% (03 Hours)		

E. Studio Courses [Having Lecture (L) and Drawing (D) Contact Hours in B.Arch. Courses]

SN	Component	Weightage
1.	Continuous Assessment (Based on quantity and quality of experiments/jobs, skills in handling equipment, performance in viva/tests, accuracy of outcomes/features/design problems, etc.)	80%
2.	End Semester Evaluation (Performance in practical/job/test/quiz/viva, etc.)	20%

Student Related Authorities for Various Matters



Institute Central Facilities

Computer Center	Computer Centre is a central facility related to computing, communication and networking services
Central Workshop	As part of Department of Mechanical Engineering, the Central Workshop imparts practical training to students of all departments in the shop floor
Health Center	Provides treatment for different diseases and also provide first aid to the injured. Institute ambulance is available for serious cases
Central Library	Home of almost 90000+ books and journals and can accommodate more than 500 students
Auditorium	Used to organize various Institute events
Open Air Theater	Used to organize students functions
SBI Branch	Ground Floor, Estate Office Building
Post Office	First Floor, Estate Office Building (Above SBI Bank)
Eateries	Amul, Verka, Juice Bar, HPMC and 4H
Book Shops	One near Estate Office and one at Main Gate
Other Shops	Photostat and Printing Shop (Near Estate Office), Two Confectionaries Shops (one near Estate Office and one at Main Gate), One Vegetable and Fruits Shop (Main Gate), One Daily Need Shop (Main Gate), Patanjali Store (Gate II)
Laundry Shops	One near SBI Bank and one near Gate II

