

DR. BABASAHEB AMBEDKAR MARATHWADA UNIVERSITY**CIRCULAR NO. ACAD/SU/Engg./B.Tech./Syllabi/96/2014**

It is hereby informed to all concerned that, the syllabus prepared by the Boards of Studies, Ad-hoc Board, Committees and recommended by the Faculty of Engineering and Technology, the Academic Council at its meeting held on 08-07-2014 has accepted the following **"Revised Syllabi in all Branches of B.TECH."** as appended herewith :-

Sr. No.	Revised Syllabi
[1]	B.Tech. Civil Engineering,
[2]	B.Tech. Mechanical Engineering,
[3]	P.Tech. Electronics & Telecommunication Engineering,
[4]	B.Tech. Computer Science & Engineering,
[5]	B.Tech. Agricultural Engineering,
[6]	B.Tech. Plastics & Polymer Engineering,
[7]	B.Tech. Instrumentation & Control Engineering,
[8]	B.Tech. Production Engineering.

This is effective from the Academic Year 2014-2015 and onwards.

All concerned are requested to note the contents of this circular and bring the notice to the students, teachers and staff for their information and necessary action.

University Campus,
Aurangabad-431 004.
REF.NO. ACAD/ SU/ B.TECH./
SYLLABI / 2014/
A.C.S.A. I.No.446[02].

Date:- 13-08-2014.

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Director,
Board of College and
University Development.

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Copy forwarded with compliments to :-

- 1] The Principals, affiliated concerned Colleges,
Dr. Babasaheb Ambedkar Marathwada University.
- 2] The Director, University Network & Information Centre, UNIC, with
a request to upload the above all syllabi on University Website.

Copy to :-

- 1] The Controller of Examinations,
- 2] The Superintendent, [Engineering Unit],
- 3] The Programmer [Computer Unit-1] Examinations,
- 4] The Programmer [Computer Unit-2] Examinations,
- 5] The Superintendent, [Eligibility Unit],
- 6] The Director, [E-Suvidha Kendra], in-front of Registrar's Quarter,
Dr. Babasaheb Ambedkar Marathwada University,
- 7] The Record Keeper,
Dr. Babasaheb Ambedkar Marathwada University.

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**DR. BABASAHEB AMBEDKAR
MARATHWADA UNIVERSITY,
AURANGABAD.**



Revised Syllabus of

B. TECH.

CIVIL ENGINEERING

[Effective from 2014-15 & onwards]

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
FACULTY OF ENGINEERING AND TECHNOLOGY
Syllabus & Structure w.e.f- 2014-2015
Final Year B. Tech (Civil Engineering)

Sub Code	SEMESTER-VII	Contact Hrs / Week				Examination Scheme						
	Subject	L	T	P	Total	CT	TH	TW	P	Total	Credits	Duration of Theory Exam
CED401	Structural Mechanics	3	1	-	4	20	80	-	-	100	4	3 Hours
CED402	Environmental Engineering-II	3	1	-	4	20	80	-	-	100	4	3 Hours
CED403	Project Planning & Management	4	-	-	4	20	80	-	-	100	4	3 Hours
CED404	Transportation	4	-	-	4	20	80	-	-	100	4	3 Hours
CED441-444	Elective-II	4	-	-	4	20	80	-	-	100	4	3 Hours
CED421	Laboratory-I, Structural Mechanics	-	-	2	2	-	-	50	-	50	1	NA
CED422	Laboratory-II, Environmental Engineering-II	-	-	2	2	-	-	50	-	50	1	NA
CED423	Laboratory-III, Project Planning & Management	-	-	2	2	-	-	50	50	100	1	NA
CED424	Laboratory-IV, Transportation Engineering	-	-	2	2	-	-	50	50	100	1	NA
CED425	Project-II	-	-	6	6	-	-	100	100	200	3	NA
	Total of semester-VII	18	02	14	34	100	400	300	200	1000	27	-

Sub Code	SEMESTER-VIII	Contact Hrs /Week				Examination Scheme						
	Subject	L	T	P	Total	CT	TH	TW	P	Total	Credits	Duration of Theory Exam
CED471	Inplant Training (IPT)*	-	-	-	-	-	-	300	300	600	27	NA
	Total of semester-VIII	-	-	-	-	-	-	300	300	600	27	-
	Grand Total of VII & VIII	-	-	-	-	100	400	600	500	1600	54	-

L: Lecture hours per week T: Tutorial hours per week P: Practical hours per week CT: Class Test
 TH: University Theory Examination TW: Term Work P: Practical/Oral Examination NA: Not Applicable

- Elective-II :**
1. CED441-Elective-II Green Building Technology
 2. CED442-Elective-II Economics, Costing and Management
 3. CED443-Elective-II Earthquake Engineering
 4. CED444-Elective-II Open Elective

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*After every two weeks of Inplant Training (IPT) student shall appraise the progress of training to the internal guide and get the required inputs.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
(Faculty of Engineering and Technology)
Syllabus of Final Year B. Tech. (Civil Engineering)

Code No.: CED401
Teaching Scheme:
Theory: 03 Hrs/ week
Tutorial: 01 Hrs./week
Credits:04

Semester VII
Course Title: Structural Mechanics
Class Test (Marks): 20
Theory Examination (Duration): 03hrs
Theory Examination (Marks): 80

Course Objectives	:	<ul style="list-style-type: none"> • To develop the knowledge and skills of the students towards various advanced methods of structural analysis and design. To improve their knowledge regarding the behaviour of structural elements like plates and shells under strained conditions • To develop the knowledge of plastic theory and understand the difference between the elastic and plastic theory for analysis of statically indeterminate structures.
Unit-I	:	Theory of elasticity: Introduction to elastic theory, Basic concepts, strain compatibility, generalized Hook's law, Stress and strain relationship, plain stress and plain strain problems with examples, equilibrium equation for 3-D elastic body. (10 Hrs)
Unit-II	:	Theory of plates: Laterally loaded plates with small deflection theory. Cylindrical bending of thin rectangular plates. (05 Hrs)
Unit-III	:	Analysis of shells: membrane theory of thin cylindrical shells (05 Hrs)
Unit-IV	:	Flexibility matrix method: flexibility coefficients, Applications to continuous beams, single bay single storey portal frames and pin jointed frames. (15 Hrs)
Unit-V	:	Stiffness Matrix Method: Stiffness coefficients, Applications to continuous beams , single bay single storey portal frames and pin jointed frames (15 Hrs)
Unit-VI	:	Plastic Method of Analysis & Design: Introduction to plastic theory, Plastic Analysis and design of indeterminate structures, upper bound and lower bound theorems for beams and Collapse load for rectangular portal frames, shape factor. (10 Hrs)
Text Books	:	1 C.S.Reddy "Basic Structural Analysis" Tata McGraw-Hill Education, 1994 2 Gere Waver "Matrix analysis of structures "Second edition. 3 N.C. Sinha and P.K. Gayen "Advanced theory of structures" Dhanpat Rai New Dehli-7 5 Timoshenko & Goodier "Theory of plates and shells" Tata McGraw-Hill 6 Timoshenko "Theory of Elasticity" McGRAW-HILL 2010.
References e- books, e- Journals	:	www.sciencedirect.com

Section A: Includes Unit I, II and III; **Section B:** Includes Unit IV, V and VI.

Pattern of Question Paper:

The six units in the course syllabus shall be divided in two equal parts of 3 units each. Question paper shall be set having two sections; Section A and Section B. The questions of Section A shall be set on first

part and questions of Section B on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Set ten questions in all with five questions in each section.
2. Question no. 1 from section A and Question no. 6 from section B should be made compulsory and should cover the entire course syllabus of the respective section and should be set for ten marks each. The Question no.1 and 6 should be of objective nature.
3. Two questions of 15 marks each from remaining questions from each section A and B should be asked to solve.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
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Syllabus of Final Year B. Tech. (Civil Engineering)

Code No.: CED402
Teaching Scheme:
Theory: 04 Hrs/ week
Tutorial: 01 Hrs./week
Credits:04

Semester VII
Course Title:Environmental Engineering II
Class Test (Marks): 20
Theory Examination (Duration): 03hrs
Theory Examination (Marks): 80

Course Objective	:	A Knowledge of Environmental Engineering help the engineers to analyse ,think logically and pursue the engineering approach for safe disposal of waste and therefore desires as an integral part of engineering education and training, irrespective of the branch specialization
Unit-I	:	Waste water Terminology Definitions of some common terms- Refuse, Sewage, Garbage, rubbish, storm water ,Sullage ,sewer, sewerage and components of sewerage system, system of sanitation, types of sewerage system, sewer layouts, patterns of collection system, various sewer sections, design of sewers, sewer appurtenances <p style="text-align: right;">(10Hrs)</p>
Unit-II	:	Quality and characteristics of waste water Physical, chemical and biological parameters,BOD and COD, first and second stage BOD,limitations of BOD, Problems on first stage BOD <p style="text-align: right;">(8Hrs)</p>
Unit-III	:	Natural methods of waste water disposal Methods of disposal, disposal by dilution, standards for waste water, self purification of streams, actions involved and zones of pollution, oxygen sag analysis, streeter-phelps equation, dilution into sea, disposal on land comparison of disposal methods, flow equalization inline-offline <p style="text-align: right;">(12Hrs)</p>
Unit-IV	:	Waste water treatment process and its design Screen, grit chambers,PST,trickling filters, sludge disposal methods and sludge drying beds ,design of various components of waste water treatment plant <p style="text-align: right;">(12Hrs)</p>
Unit-V	:	Low cost waste water treatment system and its design Aerated lagoon, stabilization pond , oxidation ditch, problems based on the same, <p style="text-align: right;">(12Hrs)</p>
Unit-VI	:	Advance waste water system Nitrification and denitrification, phosphorous removal, removal of dissolved inorganic substances <p style="text-align: right;">(8Hrs)</p>
Text Books	:	<ol style="list-style-type: none"> 1. Water supply waste disposal and environmental engineering ---A.K.Chatterjee, Khanna publishers, sixth edition 2. Sewage disposal and air pollution --- S.K.Garg, Khanna publishers, twelfth edition 3. Waste water engineering --- B.C.Punmia,A.K.Jain,Laxmi publications, second edition 4. Water supply and sanitary engineering --- G.S.Birde, J.S.Birde,Dhanpat rai publishing company, eighth edition 5. Waste water treatment --- M.N.Rao ,A.K.Datta , Oxford and IBH ,second edition 6. Environmental Engineering--- Howard S Peavey and Donald R Rowe , McGraw-Hill, first International edition

		7. waste water Engineering --- Metcalf and Eddy, Tata McGraw Hill ,second edition
References e- books	:	http://www.researchgate.net/journal/1582-9596-Environmental_engineering_and_management_journal

Section A: Includes Unit I, II and III; **Section B:** Includes Unit IV, V and VI.

Pattern of Question Paper:

The six units in the course syllabus shall be divided in two equal parts of 3 units each. Question paper shall be set having two sections: Section A and Section B. The questions of Section A shall be set on first part and questions of Section B on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Set ten questions in all with five questions in each section.
2. Question no. 1 from section A and Question no. 6 from section B should be made compulsory and should cover the entire course syllabus of the respective section and should be set for ten marks each. The Question no. 1 and 6 should be of objective nature.
3. Two questions of 15 marks each from remaining questions from each section A and B should be asked to solve.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
(Faculty of Engineering and Technology)
Syllabus of Final Year B. Tech. (Civil Engineering)

Code No.: CED403
Teaching Scheme:
Theory: 04 Hrs/ week
Credits:04

Semester VII
Course Title: Project Planning & Management
Class Test (Marks): 20
Theory Examination (Duration): 03hrs
Theory Examination (Marks): 80

Course Objectives	:	1. To develop the awareness students regarding scope of construction Industry and management, various acts, importance of safety etc. 2. To make the students familiar with various techniques of project management 3. To develop the knowledge of students towards material handling and management and various construction equipments used in the Industry.
Unit-I	:	Characteristics of Civil Engineering works, classification & types of construction, scheduling & controlling. Important Acts and Laws: Factory Act, minimum wages act, Insurance act, workmen's compensation act, other provisions of act. (6Hrs)
Unit-II	:	Network Techniques & applications: Bar charts, their advantages & deficiencies, logic of dummy activities, network construction, activity time, float, prime cost, over heads, cost slopes, resource planning, resource allocation, project review & controlling, updating of network technique, crashing of network. Planning, resource allocation, project review & controlling, updating of network technique, crashing of network. (12 Hrs)
Unit-III	:	Program Evaluation & Review Technique: Introduction, advantages, time estimates, slack, project duration, comparison between CPM & PERT (12 Hrs)
Unit-IV	:	Planning for safety: Importance of safety in construction work, causes of accidents, remedial measures & precautions, accident hazards, safety program, injury frequency rate and indices. Material Management: General, aims & function, Inventory analysis, ABC analysis, material requirement planning, Inventory management, Inventory cost, Inventory models, Buffer stock. (12 Hrs)
Unit-V	:	Construction manpower management: a) Work- study & motion study: Definition & application, method study (motion study) symbols used procedure of method study basis time, Relaxation allowance, and standard time. b) Personnel Management: Introduction, importance of man power planning, Employees framing, motivation, welfare activities. (12Hrs)
Unit-VI	:	Construction equipments: General, classification, Hauling equipments, Earth moving machines, hoisting equipments, conveying equipments, vibrators, concepts of time for equipment operation, cost of owning & operating, down time cost, obsolescence cost. (6Hrs)
Text Books	:	1. R.L. Peurifoy, "Construction Planning Equipment & Method" 2. Mahesh Verma, "Construction Planning & management" 3. O.P. Khanna, "Industrial Engineering & management" 4. Vazirani & Chandola, " Construction Planning & Management " 5. B.C. Punmia & Khandelwal, "CPM & PERT "

References e- books, e- Journals	:	http://www.thoughtware.com.au/documents/method123-ebook.pdf
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Section A: Includes Unit I, II and III; **Section B:** Includes Unit IV, V and VI.

Pattern of Question Paper:

The six units in the course syllabus shall be divided in two equal parts of 3 units each. Question paper shall be set having two sections; Section A and Section B. The questions of Section A shall be set on first part and questions of Section B on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Set ten questions in all with five questions in each section.
2. Question no. 1 from section A and Question no. 6 from section B should be made compulsory and should cover the entire course syllabus of the respective section and should be set for ten marks each. The Question no. 1 and 6 should be of objective nature.
3. Two questions of 15 marks each from remaining questions from each section A and B should be asked to solve.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
(Faculty of Engineering and Technology)
Syllabus of Final Year B. Tech. (Civil Engineering)

Code No.: CED404
Teaching Scheme:
Theory: 04 Hrs/ week
Credits:04

Semester VII
Course Title: Transportation Engineering II
Class Test (Marks): 20
Theory Examination (Duration): 03hrs
Theory Examination (Marks): 80

Course Objectives	:	The primary objective of this course is to introduce to transportation engineering principles for streets, highways and tunnels with emphasis on the safe and efficient operation of roadways. The students will be able to evaluate, analyze, design optimize, simulate, and present a through description of analysis process.
Unit-I	:	Highway Planning & Financing: Historical Developments, classifications of roads, planning surveys, Preparation of master plan & its phasing, Nagpur Plan, Bombay Plan, Lucknow Plan Highway Materials: Soil & its characterization, CBR test, plate bearing test Various properties of aggregates and bituminous materials and Test, IS Specifications,(Regarding Highway materials) (9Hrs)
Unit-II	:	Highway Alignment & Geometric Design: Alignment Principles, surveys for location, cross sectional elements, Right of way, Camber, Gradient, Typical Highway cross section in embankment and in cutting, PIEV Theory, stopping sight distance, Overtaking the distance, Horizontal alignment - curves, design of super elevation, Extra widening, transition curves, and vertical alignment. Design of summit and valley curves. IRC Standards for Geometric design. (10Hrs)
Unit-III	:	Highway pavement design: Types of pavements- Flexible and Rigid pavement, structure. Functions & components, Design factors. ESWL. For dual wheels. Tire and contact pressure, and Flexible pavement design by Group index and C.B.R. Method, Westergards analysis for wheel load & Temperature stresses in rigid pavement, Combination of stresses, Joints in Rigid Pavement, Rigid and Flexible pavement failures, Highway maintenance. (10Hrs)
Unit-IV	:	Pavement Construction: Construction of earth roads, stabilized soil roads, water macadam roads, wet mix Macadam roads, bitumen Macadam, Asphalt concrete. Seal coat, mix seal surfacing, liquid spray grout, and construction of cement concrete roads. Highway construction machinery: Earth moving equipments, spreaders, rollers payers, finishers, binder, Sprayers, hot mix plant, vibromixers and tippers (06 Hrs)
Unit-V	:	Traffic Control and regulations – Traffic characteristics, various traffic studies, Road Parking system, Accident Study, Traffic control devices, Marking, Signs, Signals, islands & its types, warrants for Traffic signal, Grade intersections - cloverleaf, Diamond, Rotary intersection & design elements Introduction to Elements of Docks and Harbors: Engineering, classification. Requirements, selection of site. Introduction to Airport Engg: Engineering, classification. Requirements, selection of site. (11Hrs)
Unit-VI	:	Tunneling: Classification and geological consideration of Tunnels tunneling in hard and soft rocks, Tunnel Surveys including setting out & modern techniques, transfer of tunnel alignment, Geological condition for tunnels, equipments for drillings & driving, drill holes, explosives, types & use of firing delay techniques, Tunnel boring machine, mucking & rock bolting, methods, types of boring machine, mucking, supporting,

		shield methods for ordinary & pneumatic ,safety Tunnel Lining its necessity& Modern methods used for tunnel lining. Modern methods for tunneling. (13Hrs)
Text Books	:	<ol style="list-style-type: none"> 1. S.K.Khanna and Justo," Highway Engineering". 2. Partha Chakraborti & AnimeshDas , "Principles of Transportation Engineering". 3. G.Venkatappa Rao, "Airport Engineering". 4. N.L.Arora." Transpotation Engineering" 5. S.K.Khanna and M.G.Arora, "Airport Planning and design" 6. Robert Hornjeff." The planning and design of airports" 7. Virender Kumar & Satish Chandra , "Air Transportation Planning and design"
References e- books, e- Journals	:	http://www.cowi.com/menu/service/RailwaysRoadsandAirports/Roadsandhighways/Documents/021-1500-011c-07a_low_roads%20and%20highways.pdf

Section A: Includes Unit I, II and III; **Section B:** Includes Unit IV, V and VI.

Pattern of Question Paper:

The six units in the course syllabus shall be divided in two equal parts of 3 units each. Question paper shall be set having two sections: Section A and Section B. The questions of Section A shall be set on first part and questions of Section B on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Set ten questions in all with five questions in each section.
2. Question no. 1 from section A and Question no. 6 from section B should be made compulsory and should cover the entire course syllabus of the respective section and should be set for ten marks each. The Question no.1 and 6 should be of objective nature.
3. Two questions of 15 marks each from remaining questions from each section A and B should be asked to solve.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
(Faculty of Engineering and Technology)
Syllabus of Final Year B. Tech. (Civil Engineering)

Code No.: CED441
Teaching Scheme:
Theory: 04 Hrs/ week
Credits:04

Semester VII
Course Title: **EL-II Green Building Technology**
Class Test (Marks): **20**
Theory Examination (Duration): **03hrs**
Theory Examination (Marks): **80**

Course Objectives	:	1. Main objective is to create interest among students in green buildings and motivate them to pursue knowledge in this field. 2. At the end of this course student should gain basic knowledge of the green buildings and the related terminology. Also he should be able prepare for AP exams.
Unit-I	:	Introduction: Definition, terminologies, objectives, Kyoto-protocol, LEED rating system, benefits to various buildings e.g. Industrial, residential, commercial complexes, educational institute, institutes working in this field ex. IGBC, TERI etc., business opportunity (6 Hrs)
Unit-II	:	LEED Rating System: LEED credit systems, various points calculation, ratings e.g. Silver, Gold and Platinum, government policies, environmental norms, carbon credits, direct and indirect benefits (10 Hrs)
Unit-III	:	Planning: Sun diagram, indoor air pollution, LEED credits calculation, resources, building elements e.g. door, window, HVAC, paints, landscaping, biodiversity, zero discharge concept, comparison between construction cost & operation cost Materials: Recycled, processed, locally available, sustainable material, new age green materials (10 Hrs)
Unit-IV	:	Elements of Green Buildings (Detail study of): Light, Ventilation, Water recycle & optimization, HAVC SYSTEM, Electric efficiency, Finishing items, Furniture & fixtures, Landscaping, Maintenance (10 Hrs)
Unit-V	:	Case Study: Industrial Building, Hotel, Residential Building, Commercial complex, Educational Institute, Government building, Visit to these places which are in Operation, under construction, study and report. (18 Hrs)
Unit-VI	:	AP exam module brief, about the exam and benefits (6 Hrs)
Text Books	:	Anthony Floyd, "Green Buildings: Professional guide to Concepts, Codes & Innovations", publisher: Cengage Learning Kweku K. Bentil & Carl w. Linde, "Green Buildings: Project planning & cost estimating", publisher: John Wiley & Sons Ross Spiegel & Dru meadows "Green Building Materials: A guide to product selection & specification", publisher: John Wiley & Sons Seymour Jurnul, "Guide to Energy Conservation, energy planning for buildings", publisher: Mc Grow-Hill Mili Muzumdar, "Energy efficient buildings in India", publisher: Ministry of Non-conventional Energy sources LEED 2011 FOR INDIA, Green Buildings rating system; "IGBC, Hyderabad" Prodipto Ghosh & Jotsna Puri, "Joint Implementation of climate commitments" publisher: Teri Brenda & Robert Vale, "Green Architecture: Design for sustainable future", publisher: T & H
References e- books, e- Journals	:	http://www.epa.gov/statelocalclimate/documents/pdf/12_8_what_is_green_GGGC.pdf greensource.construction.com/tech

Section A: Includes Unit I, II and III; Section B: Includes Unit IV, V and VI.

Pattern of Question Paper:

The six units in the course syllabus shall be divided in two equal parts of 3 units each. Question paper shall be set having two sections; Section A and Section B. The questions of Section A shall be set on first part and questions of Section B on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Set ten questions in all with five questions in each section.
2. Question no. 1 from section A and Question no. 6 from section B should be made compulsory and should cover the entire course syllabus of the respective section and should be set for ten marks each. The Question no.1 and 6 should be of objective nature.
3. Two questions of 15 marks each from remaining questions from each section A and B should be asked to solve.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
 (Faculty of Engineering and Technology)
Syllabus of Final Year B. Tech. (Civil Engineering) Semester VII

Code No.: CED442

Course Title: EL-II Economics, Costing and Management

Teaching Scheme:
 Theory: 04 Hrs/ week
 Credits:04

Class Test (Marks): 20
 Theory Examination (Duration): 03Hrs
 Theory Examination (Marks): 80

Course Objectives	:	1. This course is tailored for the student desiring to learn the basics of economics and costing for qualitative and quantitative applications in the field of engineering. 2. The course is intended to lead students to an appreciation of the role of the management in industry in the global economy and the issues associated with managing resource based economies.
Unit-I	:	Introduction to economics: Introduction to economics (Functions & Objectives).Types of economics (Capitalistic, Communalistic, Mixed, Laissez Faire,Economic Thought (Classical, Political, Marxism, Neo Classical and Keynesian Theory).Role of Economics in society & its problems (10Hrs)
Unit-II	:	Concepts of Micro Economics & Macro Economics: Marginal Analysis & Opportunity Cost, Elasticity of Demand, Demand Forecasting, Law of demand & its limitations, Market Equilibrium. (6Hrs)
Unit-III	:	Elements of economics: Theory of Cost & Production, Law of return to scale, Break even analysis, Market Structures,Market Failure, Consumer Choice Theory (12Hrs)
Unit-IV	:	Cost Accounting - Nature and scope, Meaning, Objectives, functions, Advantages , Classification of cost, Elements of Cost - Materials, Labour and overheads and their Allocation and Apportionment, Methods and techniques of costing, Material Cost - Material cost Materials control and techniques ,Procurement Procedures and documentation, Methods of pricing material - Incoming and outgoing material, Overhead and variances - introduction and classification ,Treatment of under/ over absorbed overheads - Problems, Preparation of cost sheet. (12Hrs)
Unit-V	:	Management Accounting - Nature and Scope, Tools and Techniques of Management Accounting, Comparison of Management Accounting with Financial and cost Accounting. Financial Statement Analysis - Fund Flow Statement and Cash Flow Statement -Problems. Marginal costing and cost Volume Profit Analysis - Meaning ,concept and Application (12 Hrs)
Unit-VI	:	Budget and budgetary control - Meaning, Concept , advantages and types. Standard Costing and Variance Analysis, Capital Budgeting - Concept , Steps , Techniques - Discounted and non-discounted (Problems),Time value of Money, Strategic Decision Making- Cost and non-cost factors in decision making, decision making and marginal costing, Differential cost analysis. (8Hrs)

Text Books	:	1.D N Dwivedi , Managerial Economics, 7th edition, Vikas Publication 2.D M Mithani, Managerial Economics, 6th edition, Himalaya Publishing House,2012 3. Abha Mittal, Microeconomics, S Chand , New Delhi 2012. 4. Cost Accounting and Management Accounting – By S N Maheswari, Publication Year: 2013, 14 th eddition. 5.Financial , Coat and Management Accounting by Dr. P.Perisamay, Himalaya Pub.,2011 6.Cost Accounting – M.N.Arora,Vikas Pub.,2009 Khan and Jain - Management Accounting, Tata McGrawHill Pub.,2005
References e- books, e- Journals	:	https://www.uclaextension.edu/shortcourses/Pages/onsite_shtcrs/technicalMgt/techmgt_f7337.aspx

Section A: Includes Unit I, II and III; **Section B:** Includes Unit IV, V and VI.

Pattern of Question Paper:

The six units in the course syllabus shall be divided in two equal parts of 3 units each. Question paper shall be set having two sections; Section A and Section B. The questions of Section A shall be set on first part and questions of Section B on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Set ten questions in all with five questions in each section.
2. Question no. 1 from section A and Question no. 6 from section B should be made compulsory and should cover the entire course syllabus of the respective section and should be set for ten marks each. The Question no.1 and 6 should be of objective nature.
3. Two questions of 15 marks each from remaining questions from each section A and B should be asked to solve.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
(Faculty of Engineering and Technology)
Syllabus of Final Year B. Tech. (Civil Engineering)

Code No.: CED443
Teaching Scheme:
Theory: 04 Hrs/ week
Credits:04

Semester VII
Course Title: EL-II Earthquake Engineering
Class Test (Marks): 20
Theory Examination (Duration): 03hrs
Theory Examination (Marks): 80

Course Objective	:	To make students familiar with the structural behavior of civil engineering structure (building) during earthquake. The Loading calculations and design of members to be adopted in Structural Consultancy practice shall strictly be in accordance with the relevant IS codes and also the analysis of structure shall be as per elastic methods developed and adopted widely all over the country.
Unit-I	:	Elements of seismology – terminology, structure of earth, causes of an earthquake, plate tectonic theory, continental drift theory, elastic rebound theory, seismic waves, magnitude and intensity, methods of measurement, seismic zoning of India, seismic coefficients for different zones, seismograph, strong motion earthquakes, accelogram. Lessons from past earthquake: - Study of damages caused due to past, earthquakes in India and remedial measures. (10Hrs)
Unit-II	:	Vibrations :definition, causes, classification: Single Degree of Freedom systems (SDOF) - free, forced, damped, un-damped vibrations. Introduction to Multi-degrees of Freedom systems (MDOF), concept of response spectrum. (10Hrs)
Unit-III	:	Equivalent static lateral earthquake force, study of IS 1893,2002 (10Hrs)
Unit-IV	:	Building forms for earthquake resistance. Seismic effects and liquefaction of building (8 Hrs)
Unit-V	:	Earthquake Resistance Design Principles: Design philosophy, Behavior of RC building, ductility and ductile detailing, Design and detailing of beam and columns using IS 13920. (12Hrs)
Unit-VI	:	Seismic design of Masonry buildings Study of IS 4326, IS 13827, IS 13828, IS 13920. (10Hrs)
Text Books	:	<ol style="list-style-type: none"> 1. A.K. Chopra , "Dynamics of Structures-Theory and Applications to Earthquake Engineering" ,Prentice Hall Publications. 2 S. K. Duggal , " Earthquake Resistance Design of Structure" , Oxford University press 3 Manish Shrikhande, " Earthquake Engineering" 4. D. S. Joshi , "Earthquake Engineering" , Indian Society of Structural Engineering 5. Jai Krishna , "Elements of Earthquake Engineering" , South Asian Publication New Delhi 6. A.S. Arya , "Earthquake Resistant, Design of Masonry and Timber Structures" 7. Relevant IS Codes: <p>IS 1893:2002: Criteria for Earthquake Resistant Design of structures</p> <p>IS 4326:1993: Earthquake Resistant Design and Construction of Buildings- code of practice</p> <p>IS 13827: Improving Earthquake Resistance of Earthen Buildings- Guidelines</p> <p>IS 13828: Improving Earthquake Resistance of low strength Masonry Buildings-</p>

	Guidelines IS 13920: Code of practice for Ductility Detailing of reinforced concrete structures subjected to seismic forms.
References e- books, e- Journals	: BMTPC Earthquake Engineering Tips

Section A: Includes Unit I, II and III; **Section B:** Includes Unit IV, V and VI.

Pattern of Question Paper:

The six units in the course syllabus shall be divided in two equal parts of 3 units each. Question paper shall be set having two sections; Section A and Section B. The questions of Section A shall be set on first part and questions of Section B on second part. Question paper should cover the entire syllabus.

For 80 marks Paper:

1. Set ten questions in all with five questions in each section.
2. Question no. 1 from section A and Question no. 6 from section B should be made compulsory and should cover the entire course syllabus of the respective section and should be set for ten marks each. The Question no.1 and 6 should be of objective nature.
3. Two questions of 15 marks each from remaining questions from each section A and B should be asked to solve.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
 (Faculty of Engineering and Technology)
Syllabus of Final Year B. Tech. (Civil Engineering) Semester VIII

Code No: CED421

Course Title: Laboratory- I
Structural Mechanics
Term Work (Marks): 50

Teaching Scheme:
Practical's: 02 hrs/week
Credits: 01

Course Objectives	:	<ul style="list-style-type: none"> • To develop the understanding of students to the practical application of the plain stress and plain strain problems of elastic body. • To enable the student for applying the elastic theory for the analysis and design of plates and shells. • To use the matrix methods for analysing the statically indeterminate structural components such as beams and portal frames.
List of Assignments	:	<p>Assignments on:</p> <ol style="list-style-type: none"> 1. Theory of elasticity. 2. Plain stress and plain strain problems. 3. Deflection theory. 4. Theory of plates 5. Analysis of shells 6. Membrane theory 7. Flexibility matrix method. 8. Flexibility matrix method For beams and portal frame. 9. Stiffness Matrix Method 10. Stiffness Matrix Method For beams and portal frame 11. Plastic Method of Analysis & Design.

Term Work assessment shall be done on the basis of performing the experiments in the laboratory and Continuous assessment.

Practical Examination, if applicable, shall be conducted on the syllabus and term work mentioned above.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
(Faculty of Engineering and Technology)
Syllabus of Final Year B. Tech. (Civil Engineering)

Code No: CED422

Semester VII

Course Title: Laboratory-II
Environmental Engineering II

Term Work (Marks): 50

Teaching Scheme:

Practicals: 02 Hrs/week

Credits: 01

Course Objectives	:	A Knowledge of Environmental Engineering help the engineers to analyze ,think logically and pursue the engineering approach for safe disposal of waste and therefore desires as an integral part of engineering education and training, irrespective of the branch specialization
List of Practicals	:	<p>Experiments:</p> <p>Waste water quality analysis for the following parameters</p> <ol style="list-style-type: none"> 1.pH 2.Total solids 3.SVI 4.BOD 5.COD 6.Characterization of waste water from any two sources, interpretation of results 7.Design of waste water system 8.Visit to waste water treatment plant 9.Visit to dairy industry 10.Layout of the treatment plant

Term Work assessment shall be done on the basis of performing the experiments in the laboratory and Continuous assessment.

Practical Examination, if applicable, shall be conducted on the syllabus and term work mentioned above.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
 (Faculty of Engineering and Technology)
Syllabus of Final Year B. Tech. (Civil Engineering)

Code No: CED423

Semester VII

Course Title: Laboratory-III

Project Planning and Management

Term Work (Marks): 50

Practical Examination (Marks):50

Teaching Scheme:

Practicals: 02 hrs/week

Credits: 01

Course Objectives	:	Knowledge helps the engineers to plan, scheduled, analyze and think logically to pursue an engineering project to achieve its completion in target time with most viable economy.
Practicals	:	<p>Each student will be required to submit assignments on the topics mentioned in the syllabus. The assessment of term work shall be done on the following criteria.</p> <ul style="list-style-type: none"> • Continuous assessment • Oral examination conducted internally on the syllabus and the term . • Assignments based on numerical of the following <ol style="list-style-type: none"> 1.Bar chart 2.Drawing a network diagram 3. Network numerical based on float. 4. Network numerical based on cost slope. 5. Network numerical based on probability. 6. Network numerical based updating. 7. Numerical based on accident index. 8. Numerical based on economic order quantity 9. Numerical based on cost of owning and operating machinery. 10. Numerical based on resource scheduling.

Term Work assessment shall be done on the basis of performing the experiments in the laboratory and Continuous assessment

Practical Examination, if applicable, shall be conducted on the syllabus and term work mentioned above.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
(Faculty of Engineering and Technology)
Syllabus of Final Year B. Tech. (Civil Engineering)

Code No.: CED424

Teaching Scheme:
Practicals: 02 Hrs/week
Credits: 01

Semester VII
Course Title: Laboratory-IV Transportation Engineering-II
Term Work (Marks): 50
Practical Examination (Marks): 50

Course Objectives	:	A Knowledge Transportation Engineering help the engineers to have a strong analytical and practical knowledge of Planning, Designing and solving the transportation problems. To introduce the students with the principles and practice of transportation engineering this focuses on Traffic and Transportation Engineering and Highway Engineering. To strength the students' knowledge and technical knowhow to be efficient Transport Engineers.
List of Practical's	:	Experiments(any 10) 1. Aggregate impact test. 2. Aggregate crushing test. 3. Los Angles abrasion Test. 4. Shape and size test - Flakiness index and Elongation index. 5. Specific Gravity and water absorption 6. Penetration test. 7. Softening point test. 8. Viscosity test 9. Ductility test. 10 C.B.R. Test 11. Traffic volume study. 12. Spot speed study. 13 .Flash point test.
		Transportation Engineering -Laboratory Manual - S.L. Dhingra, G.V. Rao

Term Work assessment shall be done on the basis of performing the experiments in the laboratory and Continuous assesment

Practical Examination, if applicable, shall be conducted on the syllabus and term work mentioned above.

Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
(Faculty of Engineering and Technology)
Syllabus of Final Year B. Tech. (Civil Engineering)

Syllabus: B. Tech. (Civil)
Code No.: CED425
Teaching Scheme
Practical: 06 Hrs./week
Credits: 03

Semester-VII
Title: Project-II

Term Work (Marks): 100
Practical Examination (Marks): 100

<p>Course Objectives</p>	<ol style="list-style-type: none"> 1. The practical implementation of theoretical knowledge gained during the study to till date is important for engineering education. The student should be able implement their ideas/real time industrial problem/ current application of their engineering branch which they have studied in curriculum. 2. To motivate students for creativity. 3. To create awareness regarding latest technology 4. To have common platform for interaction about emerging technology. 5. To inculcate qualities of team work. 6. To explore related information using books, research papers, journals & websites. 7. To improve presentation and communication skills.
	<p>Guidelines For Students And Faculty:</p> <ol style="list-style-type: none"> 1. Students shall complete the Project-II in continuation of the work planned in third year under the course Project-I 2. Each student/group is required to- <ol style="list-style-type: none"> a. Submit a report with latest status of the project work. b. Give a 10 minutes presentation through OHP, PC, and Slide projector followed by a 10 minute discussion in the second week of their academic semester. c. Submit a report on the project topic with a list of required hardware, software or other equipment for executing the project in the third week of their academic semester. d. Start working on the project and submit initial development and CPM/PERT planning drawing in the fourth week of their academic semester. e. Preparation of PCB layout, wiring diagram, purchase of components, software demo, flowchart, algorithm, program/code, assembling, testing, etc. should be submitted by student/s within next five/Six weeks and minimum one page report should be there for each major activity. f. Overall assembling, wiring, code writing, testing, commissioning along with performance analysis, should be completed within next two weeks. g. In the last week, student/group will submit final project report to the guide. 3. Every assigned faculty/s should maintain record of progress of each student or group. <p>The format and other guidelines for the purpose of the Project Submission in hard bound copies should be as follows.</p> <p>REPORT STRUCTURE</p>

	<p>Index/Contents/Intent List of Figures List of Tables List of Symbols / Abbreviations 1. Introduction 2. Literature survey 3. System development 4. Performance analysis 5. Conclusions References Appendices Acknowledgement</p>
	<p>1. INTRODUCTION 1.1 Introduction 1.2 Necessity 1.3 Objectives 1.4 Theme 1.5 Organization</p> <p>2. LITERATURE SURVEY Literature Survey Related information available in standard Books, Journals, Transactions, Internet Websites <i>etc.</i> till date (More emphasis on last three to five years)</p> <p>3. SYSTEM DEVELOPMENT Model Development</p> <ul style="list-style-type: none"> • Mechanical / Fabricated • Analytical • Computational • Experimental • Mathematical • Software <p>(out of above methods at least one method is to be used for the model development) Some mathematical treatment or related information is required to be embodied</p> <p>4. PERFORMANCE ANALYSIS</p> <ul style="list-style-type: none"> • Analysis of system developed either by at least two methods depending upon depth of standard • These methods normally used are Analytical /Computational/Statistical/Experimental/ or Mathematical • Results at various stages may be compared with various inputs • Output at various stages with same waveforms or signals or related information/parameters • Comparison of above results by at least two methods and justification for the differences or error in with theory or earlier published results <p>5. CONCLUSIONS 5.1 Conclusions 5.2 Future Scope 5.3 Applications Contributions (if any.) The innovative work/invention/new ideas generated from the analysis of the work which can be taken from the conclusions</p> <p>REFERENCES</p> <ul style="list-style-type: none"> • Author, "Title", Name of Journal/Transactions/ Book, Edition/Volume, Publisher, Year of Publication, page to page (pp. __). <p>These references must be reflected in text at appropriate places in square bracket In case of web pages complete web page address with assessing date has to be</p>

	<p>enlisted List of references should be as per use in the text of the report</p> <p>APPENDICES Related data or specifications or referred charts, details computer code/program, etc.</p> <p>ACKNOWLEDGEMENTS Expression of gratitude and thankfulness for helping in completion of the said task with name& signed by the candidate</p>
	<ul style="list-style-type: none"> • General Guidelines Text should be printed on front and correct side of the watermark on quality bond paper Paper size- A4, 75 to 85 gsm paper Left Margin-1.5" Right Margin-3/4" Top Margin-1" Bottom Margin-1" • Pagination First page of every chapter need not be printed but counted,second page onwards page number to printed at bottom center place. All Greek words must be italic Report Heading -ALL CAPITAL—16 Font Chapter heading -ALL CAPITAL—14 Font Subchapter -Title Case-12 Font Sub-Subchapter -First Alphabet Capital case-12 Font Page numbers for Index/Contents/Intent should be in roman All text should be in times new roman Cover page should have complete symbol of institute Suitable flap (hookmark) with name of the candidate, Department and Institute name and symbol can be used with nylon strip.
	<p><i>For more information and sample of hard copy please contact the respective Head of the Department.</i></p>

**Dr. Babasaheb Ambedkar Marathwada University, Aurangabad
(Faculty of Engineering & Technology)**

Syllabus: B. Tech. (Civil)
Code No.: CED471
Examination Scheme:
Credits: 27

Semester-VIII
Title: Inplant Training (IPT)
Term work (Marks): 300
Practical Examination (Marks): 300

(a)	<p>Rationale: The techniques and processes of production of goods and services do not demand only technical skills, but also a cluster or conglomerate of skills. A significant part of which is related to the total humanistic growth of the man. Such conglomerate skills technical and humanistic cannot obviously be acquired through pure academic learning of concepts in formalized and institutional courses and in isolation of the actual work situation. It, therefore, naturally follows that no technical education will be complete till it has two components, one learning of concepts vis-a vis acquiring conceptual skill and other application of the concepts in real work situation vis-a vis acquiring manipulative or practicing skills. Technical education needs to have a complement of learning of the techniques of applying the concepts within the industry and business.</p>
(b)	<p>Objectives:</p> <ol style="list-style-type: none"> 1) The students of B.Tech course shall get an opportunity to work on live problems of the industry. 2) He/She shall apply his learning concepts in the real work situation. 3) He/She shall get an exposure to the industrial environment and thereby enable himself/herself to appreciate the other related aspects of industry viz, human, economic, commercial and regulatory. 4) He/She shall identify career paths taking into account their individual strengths and aptitude. 5) He/She shall contribute for the achievement of economic goals and aspirations of the industry and our country as a whole.
(c)	<p>The curriculum for B.Tech students of Final Year Course of Part-II shall consist of;</p> <ol style="list-style-type: none"> 1) Inplant training for a period of one full term, and the period of the term shall be as prescribed by the university from time to time. 2) A project on live problems of the industry shall be undertaken by the student/group of students undergoing training in the same establishment. 3) The term work shall consist of the inplant training record-daily diary, work diary, progress report, a record containing the literature survey in the field of appropriate branch of Engineering, a preliminary report related to project work etc. 4) Seminars will be arranged after successful completion of period specified in the scheme of semester VIII of B.Tech. The date and times will be decided according to the convenience of guide and student.
(d)	<p>General Provisions, Rules and Regulation of Inplant Training</p> <p>1. Definition</p> <ul style="list-style-type: none"> • In-plant training (IPT) means a course of training in any industry or establishment undergone in pursuance of memorandum of understanding between industry and institute and under the prescribed terms and conditions of Dr. Babasaheb Ambedkar Marathwada University, Aurangabad. • Institute means an academic Institution of higher learning associated and admitted under the privileges of university, i.e. Maharashtra Institute of

Technology, Aurangabad affiliated to Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.

- Industry means any industry or business in which any trade, occupation or subject field in engineering or technology may be specified as a designated trade.
- Establishment includes research organizations (like IITs, NITs, National Laboratories or research organization as recognized by Central Govt. / State Govt. / University)
- University means any of the universities mentioned in the schedule of Maharashtra University Act, 1994 i.e. Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.
- Collaboration means collaborative academic activity of the Institute with industry.
- Student means a B Tech Course student.

2. Memorandum of understanding:

Maharashtra Institute of Technology, Aurangabad will enter into an agreement with the industry through 'Memorandum of Understanding' for creating facilities of inplant training in the appropriate branch of Engineering according to the Course Curriculum and keep this agreement for a period of 10 years to foster a healthy industry- institute interaction for mutual benefits of both.

3. Admission to inplant training:

No student will be deputed for inplant training unless he/she produces testimonial of having kept one term for the subject under B.Tech. of final year course satisfactorily in Maharashtra Institute of Technology, Aurangabad.

4. Period of inplant training:

The period of Inplant training will be the period of one term for the subject under B.Tech. course semester-VIII, which will be notified by Dr. Babasaheb Ambedkar Marathwada University, Aurangabad.

5. Contract of Inplant Training :

- The student of Maharashtra Institute of Technology shall enter into a contract of inplant training with the employing industry.
- The inplant training shall be deemed to have commenced on the date, on which the contract of inplant training has been entered into.
- Every contract of inplant training will contain the Terms and Conditions to be agreed by both the parties.
- Every contract of inplant training shall be registered with the Maharashtra Institute of Technology within 15 days from entering into the contract.

6. Violation of contract:

Where an employer, with whom a contract for inplant training has been entered into, is for any reason, unable to fulfill his obligation under the contract, the contract end with the consent of Maharashtra Institute of Technology. It is agreed between the employer, the student and any other employer that the student shall be engaged as an "inplant trainee" under the other employer till the expiry period of the inplant training. The agreement on registration with Maharashtra Institute of Technology shall be deemed to be the contract of inplant training between the student and other employer, and from the date of such registration, the contract of inplant training with the first employer shall terminate and no obligation under that contract shall be enforceable at the instance of any party to contract against the other party thereto.

<p>7. Termination of Contract: The contract of inplant training shall terminate on the expiry of the period of inplant training. Either party to the contract of inplant training make an application to Maharashtra Institute of Technology, Aurangabad for the termination of the contract. After considering the content of the application, and objection, Maharashtra Institute of Technology by order in writing, will terminate the contract, if it is satisfied that the parties to the contract have/has failed to carry out the Terms and Conditions of the contract. Provided that where a contract is terminated-</p> <ul style="list-style-type: none"> • For the failure on the part of the Employer, Maharashtra Institute of Technology will depute students to another Employer for providing facilities of inplant training to the remaining period of training. • For the failure on the part of the student, the student will not be allowed to continue his/her inplant training in that term. The student shall be deputed for inplant training in the next coming term.
<p>8. Expectation from the Employer / Industry / Establishment: The following expectations are derived for effective inplant training.</p> <ul style="list-style-type: none"> • To provide legitimate facilities for the training and learning of all the processes. • To guide the student for understanding a project of immense importance to industry and to help him/her for his/her career advancement.
<p>9. Obligation of Students:</p> <ul style="list-style-type: none"> • Student must maintain a minimum attendance of 90% of total working days for the period of Inplant Training. • To learn his/her subject field in Engineering or Technology consciously and diligently at his place of training. • To carry out all orders of his/her Employer and the Superior in the establishment. • To abide by the Rules and Regulations of the Industry/Establishment in all matters of conduct and discipline. • To carry out the obligation under the contract of inplant training. • The student shall maintain a report of his work during the period of his inplant training in a proforma (form no: 2) made available in Annexure. • Except in case of extreme urgency, the B.Tech. student shall submit an application for all other leaves except the medical leave to the Manager/Gen. Manager (Personnel) of the concerned industry, where he is undergoing an inplant training and obtain sanction before the leave is taken. In case of Medical Leave, he shall submit an application to Maharashtra Institute of Technology, Aurangabad. The shortage in attendance will be subjected to extending the period of inplant training in which case, the student may not be allowed to appear for the test, project seminar and assessment of term work etc. which will be held immediately after successful completion of the inplant training.
<p>10. Maintenance of Record: Every student of B.Tech. course shall maintain a daily record of the work done by him/her relating to the inplant training in the proforma (Annexure).</p>

11. Industry Sponsored Student Projects:

The scheme envisages working out suitable programme for B.Tech. students. They are required to complete their implant training in a given period. During this period, they shall be familiar with the understanding of the shop process and activities. The students can be asked to solve the mini-shop problem, which will make them think and try out short experiments as an improvement in the process, tools and equipment.

The students in a group alone can undertake a project of immense importance for the benefit of the industry and also useful for the students for their advancement of career. Industry staff and Maharashtra Institute of Technology faculty can plan in advance to effectively complete the practical training with the project for preliminary studies on the floor.

The projects should aim mainly-

- Cost reduction
- Enhancing productivity
- Development/Improvement/ Effective use of Soft wares/ Systems
- Energy conservation measures
- Process Improvement technique
- Application Development
- Plastic and Polymer working
- Hardware/ Software
- Agro engineering and so on.

12. What will form a good project?

Through the project, it is hoped to provide the students an exciting experience in solving line problems under practical constraints. Hence it is desired that the project should be a well-defined problem, which can be completed and implemented within the project period. It may be a problem, evolving analysis, design, fabrication and / or testing.

13. Time Schedule for the Project:

The following time schedule should be planned by each student or groups of students, who undertake the project.

- Proposal to be received before specified date.
- Project acceptance before.
- Commencement of the project.
- Completion of the project.

14. Commitment on the part of the Institute:

- Providing a faculty member to supervise the project.
- Providing the Institute facilities to complete the project.
- Coordinator from industry will be invited to participate in the stage wise assessment of the students performance.

15. Assistance for completion of the Project:

All the projects undertaken by the students are time bound. Although, every attempt results may not be achieved within the period available for the student. In such cases, the services of the associated faculty members can be sought for the completion of the same on mutually agreed terms.

	<p>16. Monitoring of Inplant Training: The B.Tech. students are expected to follow all the rules and discipline of the industry. However, because of other academic requirements and the nature of the project, the student may have to work in other places outside the industry. The faculty and Industry supervisor will work out a suitable arrangement to review the progress of the work from time to time. Maharashtra Institute of Technology, Aurangabad will monitor the progress of inplant training in association with industry authority.</p>
	<p>17. Conduct and Discipline: In all matters of the conduct and discipline, B.Tech. student shall be governed by the rules and regulations (applicable to employees of the corresponding category) in the Establishment, where he/she is undergoing a training.</p>
	<p>18. B.Tech. Students are Trainees and not Workers:</p> <ul style="list-style-type: none"> • Every B.Tech. student undergoing an inplant training in the respective branch of Engineering & Technology in any Establishment shall be treated as a trainee and not a worker and- • The provision of any law with respect to labour will not apply to such a trainee.
	<p>19. Settlement of Disputes: Any disagreement or dispute between an industry and a B.Tech. student trainee arising out of the contract of inplant training shall be resolved both by Maharashtra Institute of Technology and the industry with mutual cooperation. The decision of both Maharashtra Institute of Technology and the industry shall be final.</p>
	<p>20. Holding of Test and Grant of Certificate: The progress in inplant training of every student shall be assessed by the industry and Maharashtra Institute of Technology faculty from time to time. Every B.Tech. student undergoing an inplant training shall be issued a certificate of Proficiency on completion of his/her training to the satisfaction of the industry.</p>
	<p>21. Offer of Stipend / Other Welfare Activities and Employment: It shall not be obligatory on the part of the Employer / Industry to offer any stipend and other welfare amenities available, if any, to the students of B.Tech. courses undergoing an inplant training. However, if the industry desirous to do so will be a privilege for the students and also for Maharashtra Institute of Technology in view of the bonding of better understanding and cooperation forever.</p>
(e)	<p>PRACTICAL EXAMINATION The Practical examination will be conducted after successful completion of the inplant training for which guide will be internal examiner and external examiner will be appointed by the university. The date of practical examination will be same for the students of a branch and will be notified by the university. The assessment of the practical examination shall consist of</p> <ol style="list-style-type: none"> 1. Seminar Performance 2. An oral on the project work done. 3. Assessment of the term work / report.