CURRICULUM FOR THREE YEAR
(SIX SEMESTER)
DIPLOMA COURSE IN

SADDLERY TECHNOLOGY AND EXPORT MANAGEMENT

Effective from Session

UNDER DEVELOPMENT

Semester System

Prepared By

Curriculum Development Cell

INSTITUTE OF RESEARCH DEVELOPMENT
& TRAINING, U.P., KANPUR

APPROVED BY

BOARD OF TECHNICAL EDUCATION
U.P. LUCKNOW,
CORRECTED AS SYLLABUS COMMITTEE OF:
B.T.E. MEETING HELD ON 10.06.2015

Corrected and Approved by B.T.E. On Dated 10.06.2015

STUDY AND EVALUATION SCHEME FOR
THREE YEAR (SIX SEMESTER) DIPLOMA COURSE IN SADDLERY TECHNOLOGY & EXPORT MANAGEMENT
(Effective From Session)

I Semester

Curriculum							Scheme of Examination							
Periods Per Week						S U B J E C T	Theory			Practical			Grand Total
Lec.	Tutorial	Draw	Lab	Work Shop	Total		Examination Dur.	Examination Marks	Sess. Marks	Total Marks	Examination Dur.	Examination Marks	Sess. Marks	Total Marks	
5	-	-	3	-	8	1.1 Professional Communication	2.5	50	20	70	3	20	10	30	100
3	1	-	-	-	4	1.2 Applied Mathematics-I(A)	2.5	50	20	70	-	-	-	-	70
3	1	-	-	-	4	1.3 Applied Physics-I	2.5	50	20	70	-	--	--	--	70
6	-	-	4	-	10	1.4 Applied Chemistry	2.5	50	20	70	3	40	20	60	130
4	-		4		8	1.5 Elements of Leather Tech.	2.5	50	20	70	3	40	20	60	130
-	-	8	-	--	8	1.6 Drawing	3.0	50	20	70	-	-	-	-	70
21	2	8	11	-	42	<---------TOTAL---------->	--	300	120	420		100	50	150	570
						Games/NCC/Social and Cultural Activities + Discipline (15 + 10)									25
													TOTAL		595

II Semester

3	1	-	-	-	4	2.1 Applied Mathematics-I(B)	2.5	50	20	70	-	-	-	-	70
3	1	-	4	-	8	2.2 Applied Physics-II	2.5	50	20	70	3	40	20	60	130
2	-	-	5	--	7	2.3 Introduction To Computer		--	--	--	3	60	30	90	90
4	-	-	--	--	4	2.4 Occupatioal Skills	2.5	50	20	70	--	--	--	--	70
4	-	-	4	--	8	2.5 Basic Skills	2.5	50	20	70	3	60	30	90	160
-	-	-	-	14	14	2.6 Saddlery Workshop		--	--	--	4	70	30	100	100
16	2	-	13	14	45	<---------TOTAL---------->	--	200	80	280		230	110	340	620
						Games/NCC/Social and Cultural Activities + Discipline (15 + 10)									25
													TOTAL		645

NOTE:- (1) Each period will be of 50 minutes duration.
(2) Each session will be of 16 weeks.
(3) Effective teaching will be at least 14 weeks.
(4) Remaining periods will be utilised for revision etc.

Corrected and Approved by B.T.E. On Dated 10.06.2015

STUDY AND EVALUATION SCHEME FOR
THREE YEAR (SIX SEMESTER) DIPLOMA COURSE IN SADDLERY TECHNOLOGY & EXPORT MANAGEMENT
(Effective From Session)

III SEMESTER

Curriculum							Scheme of Examination								
Periods Per Week								Theory			Practical				Grand Total
Lec.	Tutorial	Draw	Lab	Work Shop	Total		Examination Dur.	Marks	Sess. Marks	Total Marks	Examination Dur.	Marks	Sess. Marks	Total Marks	
8	-	-	-	-	8	3.1 Saddle (Concept,Classification and Application)	2.5	50	20	70	-	-	-	-	70
8	-	-	-	-	8	3.2 Bridle (Concept,Classification and Application)	2.5	50	20	70	-	-	-	-	70
4	-	-	8	-	12	3.3 Computer Application PRACTICALS	-	-	-	-	3	80	40	120	120
-	-	-	-	8	8	3.4 Saddle:Fabrication(Workshop	-	-	-	-	3	120	60	180	180
-	-	-	-	8	8	3.5 Bridle:Fabrication(Workshop	-	--	--	--	3	100	50	150	150
20	-	-	8	16	44	<---------TOTAL---------->	--	100	40	140		300	150	450	590
Games/NCC/Social and Cultural Activities + Discipline (15 + 10)															25
TOTAL															615

IV SEMESTER

6	-	-	-	-	6	4.1 Harness (Concept,Classification and Application	2.5	50	20	70	-	-	-	-	70
12	-	-	-	-	12	4.2 General Concepts and Application of Management	2.5	50	20	70	-	-	-	-	70
8	-	-	--	--	8	4.3 Export Management PRACTICALS	2.5	50	20	70	--	--	--	--	70
-	-	-	-	16	16	4.4 Harness:Fabrication(Workshop	-	-	-	-	3	100	50	150	150
-	-	-	-	-	-	4.5 Industrial Training(4 Weeks (At Institute Level)	--	--	--	--	-	--	--	--	--
26	-	-	-	16	42			150	60	210		100	50	150	360
Games/NCC/Social and Cultural Activity/Community Development Work + Discipline (15 + 10)															25
AGGREGATE															385

NOTE:- (1) Each period will be of 50 minutes duration.
(2) Each session will be of 16 weeks.
(3) Effective teaching will be at least 14 weeks.
(4) Remaining periods will be utilised for revision etc.
(5) SI system of units shall be used in each subject.
(6) After the semester examination of IV Semester, student will go for a 4 weeks Industrial Training in small/medium size industry. It will be structured and supervised by institution.Every Student will submit a report of his training. The report will invaribly contain the description of his observations about Product/Work and Equipment used. He will be evaluated at institute level. For 70 Marks- 50 marks for viva and 20 for report presented in VI Semester.

Corrected and Approved by B.T.E. On Dated 10.06.2015

STUDY AND EVALUATION SCHEME FOR
THREE YEAR (SIX SEMESTER) DIPLOMA COURSE IN SADDLERY TECHNOLOGY & EXPORT MANAGEMENT
(Effective From Session)

V Semester

Curriculum							Scheme of Examination								
Periods Per Week						S U B J E C T	Theory			Practical			Grand	
Lec.	Tutorial	Draw	Lab	Work Shop	Total		Examination Dur.	Sess. Marks	Total Marks	Examination Dur.	Sess. Marks	Total Marks	Total	
6	2	-	-	-	8	5.1 Industrial Management & Entrepreneurship Develop.	2.5	50	20	70	-	-	-	-	70
8	-	-	-	-	8	5.2 Western Saddle	2.5	50	20	70	-	--	--	--	70
-	-	-	-	12	12	5.3 Workshop	-	-	-	-	4	80	40	120	120
8	-	-	12	-	20	5.4 Saddlery Accessories	2.5	50	20	70	4	100	50	150	220
22	2	-	12	12	48			150	60	210		180	90	270	480
Games/NCC/Social and Cultural Activity/Community Development Work + Discipline (15 + 10)															25
													AGGREGATE		505

VI Semester

4	-	-	-	-	4	6.1 Environmental Education* & Disaster Management	2.5	50	--	70	--	--	--	--	70
6	-	-	-	-	6	6.2 International Business Management & TQM	2.5	50	20	70	-	-	-	-	70
-	-	-	-	4	4	6.3 Project		--	--	--	-	100	50	150	150
-	-	-	-	-	-	6.4 Industrial Training(4 Weeks) At Institute Level		--	--	--	-	50	20	70	70
4			-	16	20	6.5 ELECTIVE (Any One)					4	100	50	150	150
						I. Saddle (European)	-	-	-	-	-	-	-	-	-
						II. Saddle (Western)									
						III. Bridle									
						IV. Harness									
14	-	-	-	20	34				50	20	70		250	120	370	440
Games/NCC/Social and Cultural Activity/Community Development Work + Discipline (15 + 10)															25
													AGGREGATE		465
													30% Carry Over of I & II		372
													70% Carry Over of III & IV		700
													100% Carry Over of V & VI		960
													GRAND TOTAL		2032

NOTE:-
(1) Each period will be of 50 minutes duration.
(2) Each session will be of 16 weeks.
(3) Effective teaching will be at least 14 weeks.
(4) Remaining periods will be utilised for revision etc.
(5) SI system of units shall be used in each subject.
(6) After the Semester examination of IV Sem. student will go for a 4 weeks Industrial Training in small/medium size industry. It will be structured and supervised by institution.Every Student will submit a report of his training. The report will invaribly contain the description of his observations about Product/Work and Equipment used. He will be evaluated at institute level. For 70 Marks- 50 marks for viva and 20 for report presented in VI Semester.
(7) (*) It is compulsory to appear & to pass in examination, But marks will not be included for division and percentage of obtained marks.

Corrected and Approved by B.T.E. On Dated 10.06.2015

CONTENTS

Corrected and Approved by B.T.E. On Dated 10.06.2015

Corrected and Approved by B.T.E. On Dated 10.06.2015

MAIN FEATURES OF THE CURRICULUM

Name of the Course	-	Saddlery Technology & Export Management
Intake	-	30
Duration of the Course	-	Three Year(Six Semester)
Pattern of the Course	-	Semester System
Entry Qualification	-	Passed High School with 35% Marks
Mode of admission	-	Through Joint Entrance Exam.

Corrected and Approved by B.T.E. On Dated 10.06.2015

LIST OF EXPERTS

List of experts who contributed in the Semester System of curriculum for Three Years (Six Semester) Diploma Course in Saddlery Technology at I. R. D. T., U. P., Kanpur dated 22-4-2015

1.	Shri Bharat Singh	H.O.D. Govt.Leather Institute, Agra
2.	Shri D. N. Swami	Lecturer (Shoe Design) Govt. Leather Institute, Kanpur
3.	Shri Rajjan lal Pal	Lecturer G. G. P., Lucknow
4.	Shri N. K. Singh	Instructor Govt. Leather Institute, Kanpur
4.	Shri Pankaj Yadav	Professor I.R.D.T.,U.P., Kanpur

Corrected and Approved by B.T.E. On Dated 10.06.2015

COURSE OBJECTIVE :

The Vision of the Hon'ble Prime Minister of the country as enunciated in the foreward to the 10th 5-year plan document, has been the guiding principle behind the commencement of the course. This vision is being reproduced as bellow :-

1. The most pressing challenge facing us in the coming years will be to provide every Indian with the opportunities to realize his or her full creative potential. Demographic trends indicates that the rate of growth of our working age population during the next ten years will be highest we have ever experienced, and unless we achieve a significant improvement in the pace of creation of work opportunities, there will be an increase in the level of unemployment. Such a situation cannot be allowed to materialize.
2. Unemployment not only entails high human cost, it can also lead to serious social disruption and put enormous strain on the fabric of our society, More importantly, the youth of our country is our most valuable resource and there can be no greater shame than to let it go waste for the lack of will and determination. future generations will not forgive us for opportunities lost. We have, therefore, made a commitment to the young people of this country that our economy will generate one crore work opportunities each year for the next ten years so that their talents and potentials are utilize for the benefit of the Nation.
3. These dreams cannot be realized without rapid growth and development. We must, therefore, explore every conceivable way to accelerate the rate of the growth of economy. We must collectively show the firm resolves to actualize the latent potentialities of our great country, putting behind all doubts and differences.

It is obvious from this visionary statement that providing

jobs of the youth of the country in the immediate future has become imperative. In case this issue is not addressed up front right now, it is likely to assume dangerous dimension leading to grave social tension in the years to come.

Technical education department is entrused with the responsibility of introducing as many vocational courses as might be required both from the point of view of need of the industrial development as well as redressal of the unemployment problem.

Today's fast changing situation have thrown open vast opportunities of enployment which require grooming of the youth tailored to the needs of the particular area of the activity. This is true with almost all the sectors of the economy which encompasses agriculture and allied activities, industry comprising of cottage, small, medium and large segments, services and business. The boom in the IT enabled services requires tailoring of the teaching contents suiting to the needs of the particular area of the activity.

It is against the background that this Institute has been established under the aegis of the, UNDP supported Government of India National Leather Development Programmes project, called SUPPORT TO THE SADDLERY SECTOR IN KANPUR. Broadly, the objectives of the institute are to introduce various courses for grooming technical manpower with a view to helping the saddlery segment of the industry enable it to realize its vast potential. With 100% export oriented product mix, were over 200 saddlery units are providing direct employment to over 15,000 workers with an equal number getting in direct employment by way of various ancillay and allied activities.

The overall emphasis in the course content is on growing the students in such a way which not only ensures his/her

personality. This has become all the more important in view of the demanding situations which have arisen out of the enormous technological advancements. Which is why, besides teaching saddlery, various other inputs, e.g. Business communication Skills, Computer Literacy, In-depth Study of the real life situation in the units during training and exposure to several infrastructure and service related areas has been included in the curriculum. It is hoped that at the end of the course it will enable the students to prove worthy of the expectations of the industry which is in urgent need of technically qualified manpower for various positions like Managers, Supervisors and Workers, besides entrepreneurial skills which are also equally required in view of the latest development in the international markets.

Corrected and Approved by B.T.E. On Dated 10.06.2015

I Semester

1.1 PROFESSIONAL COMMUNICATION

[Common to All Engineering/Non Engineering Courses]

L	T	P
5	-	3

Rationale:

Communication forms an important activity of diploma holder. It is essential that he/she should be in a position to communicate in writing and orally with superiors,equals and subordinates. This subject aims at providing working knowledge of languages like Hindi and English so as to train the students in the art of communication. It is suggested that maximum attention should be given in developing Communication abilities in the students while imparting instructions by giving maximum emphasis on practice.

Sr.No.	Units	Coverage time L	T	P
1.	Introduction to communication methods meaning,channels & media written and verbal.	5	-	-
2.	Development of comprehension of English & Hindi through study of text material& language exercises.	10	-	-
3.	Development of expression through			
	A. Letters(English & Hindi)	10	-	-
	B. Report writing (English) Note making and minutes writing	10	-	-
4.	Paragraph writing, Essey writing, Proposal writing	10	-	-
5.	Composition	10	-	-
6.	Remecial Grammer & Vocabulary Building	15	-	-
		70	-	42

1. PART I : COMMUNICATION IN ENGLISH (40 Marks)

1.1 Concept of communication, importance of effective communication, types of communucation, formal, informal, verbal and nonverbal, spoken and written. Techniques of communication, Listening, reading, writting and speaking, Barriers in communication, Modern tools of communication- Fax, e-mail, Telephone, telegram, etc.

1.2 Technical communication Vs. General Communication : Development of comprehension and knowledge of English through the study of text material and language exercises based on the prescribed text book of English.

1.3 Development of expression through:

1.3.1 Paragraph writing, Essay writing, Proposal writing.

Corrected and Approved by B.T.E. On Dated 10.06.2015

1.3.2 Business and personal correspondence (Letters) :
Kinds of letters:-
Official, demi-offical, unofficial , for reply or in reply, quotation, tender and order giving letters. Application for a job, Resume.

1.3.3 Report writing and Note making and minutes writing.

1.4 Functional Grammer : Study of sentences and parts of speech (word class), Preposition, Verb, Articles, Abbreviations.

1.5 Vocabulary Building : Homophones, One word substitution, Idioms and Phrases.

1.6 Composition on narrative, descriptive, imaginative, argumentative, discussion and factual topics.

2. PART II : COMMUNICATION IN HINDI (10 Marks)

2.1 Development of comprehension and knowledge of Hindi usage through rapid reading and language exercises based on prescribed text material developed by IRDT.

2.2 Development of expression through ;

Letter writing in Hindi:
Kinds of letters:-
Official, demi-offical, unofficial , for reply or in reply, quotation, tender and order giving letters, Application for a job, Press release in Hindi, Report writing.

Note: Paper should be in two parts, part I - English and part II Hindi.

REFERENCE BOOKS

1. Bookshelf worksheet of Professional Communication, New Delhi : Bookshelf 2008

2. Functional Skills in language and literature by R. P. Singh, New Delhi : Oxford University Press.

3. Oxford Engilsh Hindi English Dictionary, New Delhi : Oxford 2008

LANGUAGE LAB PRACTICE

For the practice/exercise the following is suggested :-

1.A. Phonetic transcription
B. Stress and intonation :
(At least 10 word for writting and 10 word for pronunciation)

2. ASSIGNMENT : (Written Communication)

Two assignment of approximately 400 word each decided by the teacher concerned.

THE FOLLOWING MODEL IS PROPOSED :

1. a picture/photograph
2. an opening sentence or phrase

Corrected and Approved by B.T.E. On Dated 10.06.2015

3. a newspaper/magzine clipping or report
4. factual writting which should be informative or argumentative.

(The students may refer to "Bookshelf worksheet" for technical communication)

3. Oral Conversation:

1. Short speeches/declamation : Bid farewell, Felicitate somebody, Celebrate a public event, Offer condolences
2. Debate on current problems/topics
3. MockInterview : Preparation, Unfolding of personality and Expressing ideas effectively
4. Group discussion on current topics/problems
5. Role Play/ general conversation : Making polite enquiries at Railway Station, Post Office, Banks and other Public places, Replying to such enquiries, enquiring about various goods sold in the market and discussing their prices. Complaining about service at Hotel, restaurant, Offering apologies in reply to such complaints, complain to a company about a defective product you have brought, reply to such complaints.
6. Presentation skill, Use of OHP and LCD.
7. Through drilling of model words involving different phonetic symbols (Vowels, Consonants, Difthongs).

4. Aural :

Listening to conversation/talk/reading of short passage and then writting down the relevant or main points in the specified number of words and answering the given questions

The assignments/project work are to be evaluated by the internal/ external examiner. The distribution of 30 marks e.g.

10 marks for assignment (Given by subject teacher as sessional marks)
10 marks for conversation and viva-voce
10 marks for phonetic transcription

STRUCTURE OF THE PAPER OF PROFESSIONAL COMMUNICATION

Distribution of Marks

Theory Paper : 50 Marks
Sessional : 20 Marks
Pratices : 30 Marks

Q1. Question based on the topics of the prescribed syllabus will be set for testing candidates ability to understand the content, explain words and phrases, making sentence of given words and ability to summarise will be included. All questions will have to be answered.

A.	from English Text Book	10 Marks
B.	from Hindi Text Book	5 Marks

Q2. Candidates will be required to write one letter (English) and one letter in (Hindi) from a choice of two -

A.	English Letters	5 Marks
B.	Hindi Letters	5 Marks

Corrected and Approved by B.T.E. On Dated 10.06.2015

Q3. Report Writting on given outlines 5 Marks

Q4. There will be a number of short answer questions to test the candidates knowledge of functional grammer, structure and usage of the language. All the items in this question will be compulsory. The grammar questions has four parts -

(Total Part: A For 5 Marks, B For 3 Marks, C For 3 Marks and D For 4 Marks)

A. This part of the question has to do with the transformation of sentences. English uses several patterns of sentence formation and the same meaning can be expresed by several patterns e.g. Active to Passive voice and vice versa, Direct to Indirect and vice versa, Reframing sentences by changing part of speech e.g Noune to Adjective, Interchanging degree of comparison.

Interchanging Moods - Affirmative to Negative, Assertive to Interrogative or to exclamatory

B. The second part usually requires blanks in a sentence to be filled in with a suitable preposition and articles.

C. The third part is usually an exercise on tenses.

D. The fourth part concerns with one word substitution and abbrevation, uses of idioms and Phrases, Homophones.

Q5. COMPOSITION : (About 300 Words) (5 marks)

Candidates will be required to select one composition topic from a choice of five. The choice will normally include narrative descriptive, argumentative, discussion and factual topics. The main ceteria by which the composition will be marked are as follows

A. the quality of the language employed, the range and appropriateness of vocabulary and sentence structure the correctness of grammatical construction, punctuation and spelling.

B. The degrees to which candidate have been successfully in organising both the composition as a whole and the individual paragraphs.

Corrected and Approved by B.T.E. On Dated 10.06.2015

1.2 APPLIED MATHEMATICS I(A)

[Common to All Engineering Courses]

L	T	P
3	2/2	-

Rationale:

The study of mathematics is an important requirement for the understanding and development of any branch of engineering. The purpose of teaching mathematics to diploma engineering students is to impart them basic knowledge of mathematics which is needed for full understanding and study of engineering subjects.

S.N.	Units	Coverage L	T	Time P
1.	Algebra- I	8	3	-
2.	Algebra- II	8	3	-
3.	Trignometry	6	2	-
4.	Differential Calculus-I	10	3	-
5.	Differential Calculus-II	10	3	-
		42	14	-

DETAILED CONTENTS:

1. ALGEBRA-I : (10 Marks)

1.1 Series : AP and GP; Sum, nth term, Mean

1.2 Binomial theorem for positive, negative and fractional index (without proof). Application of Binomial theorem.

1.3 Determinants : Elementary properties of determinant of order 2 and 3, Multiplication system of algebraic equation, Consistency of equation, Crammer's rule

2. ALGEBRA-II:(10 Marks)

2.1 Vector algebra : Dot and Cross product, Scaler and vector triple product.

2.2 Complex number.

Complex numbers, Representation, Modulus and amplitud Demoivre theorem, its application in solving algebraic equations, Mod. function and its properties..

3. TRIGONOMETRY :(8 Marks)

3.1 Relation between sides and angles of a triangle : Statement of various formulae showing relation ship between sides and angle of a triangle.

3.2 Inverse circular functions : Simple case only

4. DIFFERENTIAL CALCULUS - I : (12 Marks)

4.1 Functions, limits, continuity, - functions and their graphs,

Corrected and Approved by B.T.E. On Dated 10.06.2015

range and domain, elementary methods of finding limits (right and left), elementary test for continuity and differentiability.

4.2 Methods of finding derivative, - Function of a function, Logaritimic differentiation, Differentiation of implicit functions.

5. DIFFERENTIAL CALCULUS -II :(10 Marks)

5.1 Higher order derivatives, Leibnitz theorem.

5.2 Special functions (Exponential, Logarithmic, Inverse circular and function), Definition, Graphs, range and Domain and Derivations of each of these functions.

5.3 Application - Finding Tangants, Normal, Points of Maxima/Minima, Increasing/Decreasing functions, Rate, Measure, velocity, Acceleration, Errors and approximation.

Corrected and Approved by B.T.E. On Dated 10.06.2015

1.3 APPLIED PHYSICS-I

[Common to All Engineering Courses]

L	T	P
3	2/2	-

Rationale:

Engineering physics is a foundation Course. Its purpose is to develop proper understanding of physical phenomenon and scientific temper in the students. While teaching the subject,teachers should make maximum use of demonstrations to make the subject interesting to the students.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	L	T	P
1.	Units & Dimensions	3	1	-
2.	Errors in Measurement	3	1	-
3.	Circular Motion	4	1	-
4.	Motion of Planets	4	1	-
5.	Dynamics of rigid body (Rotational Motion)	5	1	-
6.	Fluid Mechanics and Friction	4	1	-
7.	Friction	4	1	-
8.	Harmonic Motion	5	2	-
9.	Heat & Thermodynamics	6	4	-
10.	Acoustics	4	1	-
		42	14	-

DETAILED CONTENTS:

1. Units and Dimensions (4 Marks)

S.I. Units & Dimensions of physical quantities, Dimensional formula and dimensional equation. Principle of homogenity of dimensions and applications of homogenity principle to:

i) Checking the correctness of physical equations,

ii) Deriving relations among various physical quantities,

iii) Conversion of numerical values of physical quantities from one system of units into another. Limitations of dimensional analysis.

2. ERRORS AND MEASUREMENT (4 Marks)

Errors in measuremnts, accuracy and precision, random and systematic errors, estimation of probable errors in the results of measurement(Combination of erros in addition, substraction, multipication and powers). Significant figures, and order of accuracy in resprect to instruments,

3. Circular Motion (5 Marks)

Central forces. Uniform Circular motion (Horizental and Vertical cases),angular velocity,angular acceleration and centripetal acceleration.Relationship between linear and angular velocity and acceleration. Centripetal and

Corrected and Approved by B.T.E. On Dated 10.06.2015

centrifugal forces. Practical applications of centripetal forces. Principle of centrifuge.

4. MOTION OF PLANETS AND SATELLITES :(5 Marks)

Gravitational force, Acceleration due to gravity and its variation w.r. to height and depth from earth, Kapler's Law, Escope and orbital velocity, Time period of satellite, Geo-stationary, Polar satellites (Concept Only)

5. Dynamics of Rigid Body (Rotational Motion) (6 Marks)

Rigid body,Rotational motion, Moment of inertia,Theorems(Perpendicular and Parallel axis) of moment of inertia (Statement). Expression of M.I. of regular bodies (Lamina, Sphere, Disc, Cylindercal),Concept of Radius of gyration, angular momentum, Conservation of angular momentum, Torque, Rotational kinetic energy. Rolling of sphere on the slant plane . Concept of Fly wheel.

6. Fluid Mechanics :(5 Marks)

Surface tension, Capillary action and determination of surface tension from capilary rise method, Equation of continuity (A1V1=A2V2), Bernoulli's theorem, and its application stream line and Turbulent flow, Reynold's number.

7. Friction :(4 Marks)

Introduction, Physical significance of friction, Advantage and disadvantage of friction and its role in every day life. Coefficients of static and dynamic friction and their measurements. viscosity, coeff. of viscosity, & its determination by stoke's method.

8. Harmonic Motion (6 Marks)

Periodic Motion , characterstics of simple harmonic motion; equation of S.H.M. and determination of velocity and acceleration. Graphical representation. Spring-mass system. Simple pendulum. Derivation of its periodic time. Energy conservation in S.H.M.. Concept of phase, phase difference, Definition of free, forced, undamped and damped vibrations, Resonance and its sharpness, Q-factor.

9. Heat & Thermodynamics: (6 Marks)

Modes of heat transfer (Conduction, Convection and Radiation), coefficient of thermal conductivity Isothermal and adiabatic process. Zeroth First, Second Law of Thermodynamics and Carnot cycle, Heat Engine (Concept Only).

10. Acoustics (5 Marks)
Definition of pitch, loudness, quality and intensity of sound waves. Echo, reverberation and reverberation time. Sabine's formula without Derivation. Control of reverberation time (problems on reverberation time). Accoustics of building defects and remedy.

Corrected and Approved by B.T.E. On Dated 10.06.2015

1.4 APPLIED CHEMISTRY

[Common to All Engineering Courses]

L	T	P
6	-	4

Rationale:

Engineering Chemistry has profound and deep relationship with the industrial and environmental technology. This curriculum intends to impart technical knowledge alongwith productive practice to the students of the diploma engineering. The teachers are expected to guide the students in the classroom and the laboratories according to the curriculum by demonstrations and by showing relevant materials and equipments to inculcate interests in learning among students.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	L	T	P
1.	Atomic Structure	4	-	-
2	Chemical Bonding	6	-	-
3.	Classification of Elements	4	-	-
4.	Electro Chemistry-I	7	-	-
5.	Electro Chemistry-II	8	-	-
6.	Chemical Kinetics	4	-	-
7.	Catalysis	4	-	-
8.	Solid State	4	-	-
9.	Fuels	4	-	-
10.	Water Treatment	6	-	-
11.	Colloidal State	4	-	-
12.	Lubricants	4	-	-
13.	Hydrocarbons	7	-	-
14.	Organic Reactions & Mechanism	8	-	-
15	Polymers	4	-	-
16	Synethetic Materials	6	-	-
		84	-	56

DETAILED CONTENTS:

1. ATOMIC STRUCTURE :(3 MARKS)

Basic concept of atomic structure, Matter wave concept, Quantum number, Haisenberg's Uncertainty Principle, Shaples of orbitals.

2. CHEMICAL BONDING :(4 MARKS)

Covalent bond, Ionic & Co-ordinate, Hydrogen bonding, Valence bond theory, Hybridisation, VSEPR theory, Molecular orbital theory.

3. CLASSIFICATION OF ELEMENTS :(3 MARKS)

Modern classification of elements (s,p,d and f blcok elements), Periodic properties : Ionisation potential electro negativity, Electron affinity.

Corrected and Approved by B.T.E. On Dated 10.06.2015

4. ELECTRO CHEMISTRY-I:(3 MARKS)

Arrhenius Theory of electrolytic dissociation, Transport number, Electrolytic conductance, Ostwald dilution law. Concept of Acid and bases : Bronsted, Arrhenius and Lewis theory. Concept of pH and numericals. Buffer solutions, Indicators, Solubility product, Common ion effect with their application,

5. ELECTRO CHEMISTRY-II:(3 MARKS)

Redox reactions, Electrode potential(Nernst Equation), Electro-chemical cell (Galvanic and Electrolytic). EMF of a cell and free energy change. Standard electrode potential, Electro chemical series and its application. Chemical and Electrochemical theory of corrosion, Galvenic Series. Prevention of corrosion by various method.

6. CHEMICAL KINETICS :(3 MARKS)

Law of mass action, order and molecularity of rection. Activation energy, rate constants, Ist order reactions and 2nd order reactions.

7. CATALYSIS :(2 MARKS)

Definition Characteristics of catalytic reactions, Catalytic promotors and poison , Autocatalysis and Negative catalysis, Theory of catalysis, Application.

8. SOLID STATE :(2 MARKS)

Types of solids (Amorphous and Crystalline), Classification (Molecular, Ionic, Covalent, Metallic), Band theory of solids (Conductors, Semiconductors and Insulators), types of Crystals, FCC, BCC, Crystal imperfection.

9. FUELS :(3 MARKS)

Definition, its classification, high & low Calorific value.Determination of calorific value of solid and liquid fuels by Bomb calorimeter.

Liquid fuel - Petroleum and its refining, distillate of petroleum (Kerosene oil, Disel and Petrol), Benzol and Power alchol. Knocking, Anti-knocking agents, Octane number and Cetane number.

Cracking and its type, Gasoling from hydrogenation of coal (Bergius process and Fischer tropsch's process)

Gaseous Fuel - Coal gas, Oil gas, Water gas, Producer gas, Bio gas, LPG and CNG.

Numerical Problems based on topics

10. WATER TREATMENT :(3 MARKS)

Hardness of water, Its limits and determination of hardness of water by EDTA method. Softening methods (Only Sods lime, Zeolote and Ion exchange resin process). Disadvantage of hard water in different industries, scale and sludge formation, Corrosion, Caustic embritlement, primming and

Corrected and Approved by B.T.E. On Dated 10.06.2015

foarming in biolers.

Disinfecting of Water By Chloramine-T, Ozone and Chlorine. Advantage and disadvantage of chlorinational, Industrial waste and sewage, Municipality waste water treatment, Definition of BOD and COD. Numerical Problems based on topics.

11. COLLOIDAL STATE OF MATTER :(3 MARKS)

Concept of collidal and its types, Different system of colloids, Dispersed phase and dispersion medium.
Methods of preparation of colloidal solutions, Dialysis and electrodialysis. Properties of colloidal solution with special reference to absorption, Brownian Movement, tyndal effect, Electro phoresis and coagulation. relative stability of hydrophillic and hydrophobie colloids. Protection and protective colloids. Emulsion, Types, preparation,properties and uses. Application of colloids chemistry in different industries.

12. LUBRICANTS :(3 MARKS)

Definition, classification, Necessasity and various kinds of lubricants. Function and mechanism of action of lubricants and examples. Properties of lubricants, Importance of additive compunds in lubricants, Synthetic lubricants and cutting fluids. Industrial application, its function in bearing.

13. HYDROCARBONS:(4 MARKS)

A. Classification and IUPAC nomeuclature of organic compounds hamologous series (Functional Group)

B. Preparation, properties and uses of Ethane, Ethene, Ethyne (Acetylene), Benzene and Toluene.

14. ORGANIC REACTIONS & MECHANISM:(4 MARKS)

1. Fundamental auspects -

   A. Electrophiles and nucleophiles, Reaction Intermediates, Free radical, Carbocation, Carbanion
   B. Inductive effect, Mesomeric effect, Electromeric effect.

2.A. Mechanism of addition reaction (Markonicove's Rule, Cyanohydrin and Peroxide effect),

B. Mechanism of Substitution reactions; (Nucleophillic) hydrolysis of alkyle halide, electrophillic substitution halogenation, Sulphonation, Niration and friedel-Craft reaction.

C. Mechanism of Elimination reaction - Dehydration of primary alcohol, Dehyrohalogenation of primary alkyl halide.

15. POLYMERS :(3 MARKS)

1. Polymers and their classification. Average degree of polymerisation, Average molecular weight, Free radical polymerisation (Mechanisms)

Corrected and Approved by B.T.E. On Dated 10.06.2015

2. Thermosetting and Thermoplastic resen -

A. Addition polymers and their industrial application- Polystyrene, PVA, PVC, PAN, PMMA, Buna-S, Buna-N, Teflon.

B. Condensation polymer and their industrial application : Nylon 6, Nylon 6,6, Bakelite, Melamine formaldehyde, Urea formaldehyde, Terylene or Decron, Polyurethanes.

3. General concept of Bio polymers, Biodegradable polymers and inorganic polymers(Silicon)

16. SYNETHETIC MATERIALS :(4 MARKS)

A. Introduction - Fats and Oils
B. Saponification of fats and oils , Manufacturing of soap.
C. Synthetic detergents, types of detergents and its manufacturing.
3. EXPLOSIVES: TNT, RDX, Dynamite.
4. Paint and Varnish

LIST OF PRACTICALS

1. To analyse inorganic mixture for two acid and basic radicals from following radicals

A. Basic Radicals :

NH4+, Pb++, Cu++, Bi+++, Cd++, As+++, Sb+++,

Sn++, Al+++, Fe+++, Cr+++, Mn++, Zn++, Co++

Ni++, Ba++, Sr++, Ca++, Mg++

B. Acid Radicals :

CO3--, S--, SO3--, CH3COO-, NO2-,

No3- , Cl-, Br_ , I- , So4--

2. To determine the percentage of available Chlorine in the supplied sample of Bleaching powder.

3. To determine the total hardness of water sample in terms of CaCo3 by EDTA titration method using Eriochroma black-T indicator.

4. To determine the strength of given HCl solution by titration against NaOH solution using Phenolphthalium as indicator.

5. To determine the Chloride content in supplied water sample by using Mohr's methods.

6. Determination of temporary hard ness of water sample by O-Hener's method.

Corrected and Approved by B.T.E. On Dated 10.06.2015

1.5 ELEMENTS OF LEATHER TECHNOLOGY

L	T	P
4	-	4

1. INTRODUCTION :

Leather, status and quality of raw stock in India, collection of raw hides and skin composition of raw hide, regional classification of Indian raw hides and skin, hide protein, classification of proteins, chemistry of proteins, structure of raw hides/skin, current status of Indian leather industry, export of Indian leather their facts and figure.

2. PRE-TANNING OPERATION :

Theory of Curing hides and skin : Mechanism of putrefaction, theory of curing by various physical and chemical methods.

Soaking : Introduction, wetting agent, different controls in soaking operation, soaking agents, actually done by local industry.

Liming : Introduction, un-hairing, effects of alkali on keratin in absence and in presence of unhairing agent, effects of liming coolagen, amount of lime in liming, control of liming, lime blast, hauling replacing, actually done by local industry.

De-liming : De-liming, selection of de-liming agents and methods of de-liming, Drenching common de-liming agent, usually done by local industry.

Bating : Introduction, preparation of bates and controls in bating, actually done by local industry.

Pickling : Introduction, acid binding capacity of collagen, acid take up and controls, use of organic acid or salt.

Skin Degreasing : Introduction, theory of different degreasing system and methods followed in tanneries.

3. TANNING OPERATION :

Chrome tanning : Historical background, double and single bath tanning, basicities, chemistry of chromium salt, olation, polymerization, oxolation, theory of chrome tanning, chemical controls, masking, self basified chrome liquor.

Alum tannage : Basic aluminium compound, effects of salts, theory of alum tannage.

Iron tannage : Different problem and their solutions, theory of iron tanning.

Zirconium Tanning : History, chemistry of zirconium sulphate, tanning, controls, theory of zirconium tannage.

Vegetable Tanning : The chemistry of vegetable tanning materials, splitting of hydrolysable tannis, condensed

Corrected and Approved by B.T.E. On Dated 10.06.2015

tannins, non-tannins, fermentation, astringency, rapid tannage and theory of vegetable tanning, tanstuffs and extract manufacturer.

Syntan : Preparation and classification of syntan, tanning powers of syntan, role of hydroxyl group and its position and distance from acid group in syntan, syntan with no hydroxyl group, role of connecting bridge, molecular size, syntan classification.

Principle of combination tannage : Chrome - Vegetable combination tannage, retanning semichroming.

Resin tannage : Methylol urea.

Neutralization : Introduction, effects of neutralization on dyeing and fatliquoring, ideal neutralization condition for chrome upper leather, choice of chemicals.

Dyes and dyeing of leather : theory of colour production, Acid, Basic, Direct dyes, Vat dyes, Sulphur dyes, developed dyes, Natural dyes, tanning and detanning action of dyestuffs.

Theory of fatliquoring : Fatliquoring of leather, natural oils and fats, emulsifiers, selection of oils for fatliquoring cationic, anioinic synthetics oils, fats and fatliquors, advantages and disadvantages of synthetic greasing materials.

Currying of leather : Objects of currying, selection of oil for curring, preparation of leather and method of currying, method of English currying finishing.

Permeability of leather to water vapour : Introduction.

Theory of leather drying : Bounds, unbounds and free water, dryers, classification of dryers, use of indirect dryers, controls of drying, vaccum drying and other method of drying.

4. POST TANNING OPERATION :

Theory of leather finishing : Classification of finishes, characteristic of film, different layers in finish coat, placticizer, co-polymerization.

Leather finishing materials : Pigments, selection, classification and properties of pigments, film forming materials - Shellac, casein, albumim, glue gelatin, waxes, cellulose compound.

5. TYPES OF LEATHER :

Characteristic of shoe upper, lining, nubuck, suede, split leather, crazy horse, softy leather, garment leather, oily leather, oil leather, oil pull-up, corrected grain, sole and harness leather.

6. ASSESSMENT OF LEATHER QUALITY :

Introduction, tanning in a process of preservation only, physical properties always go down, tanning is a to and fro

Corrected and Approved by B.T.E. On Dated 10.06.2015

movement, tanning cannot stop decay completely, grain and fibrous layers function together.

7. TESTING OF LEATHER :

Physical tests of leather, different table.

8. DISPOSAL OF TANNERY EFFLUENT :

Introduction, types of pollution, Chemical Oxygen Demand (C.O.D.), Biological Oxygen Demand (B.O.B), primary treatment for tannery effluent, Secondary treatments of tannery effluents.

LIST OF PRACTICAL

1. Leather identification/Leather finishers.
2. Physical testing of leather, leather defects, leather grading.
3. Cost of leather (Purchase cost variance)
4. Clicking press theory.
5. Cutting exercises on clicking press.
6. Quality region of hides and sides, Line of tightness and stetchiness, Properties of leather
7. Test on leather/Leather finishes/ Leather grading and cost of leather.
8. Cutting and layouts of saddle on Buff Veg. Tanned Leather.
9. Cutting and layouts of harness of Buff Veg. Tanned Leather.
10. Cutting and layouts of Bridles on Buff Veg. Tanned Leather.
11. Cutting and layouts of saddle/harness/bridle components on Buff/Cow chrome tanned leather.
12. Costing (Calculation of leather consumption of saddle/harness/bridle on different grades of leather)
13. Material productivity (Effeciently use of leather).

Corrected and Approved by B.T.E. On Dated 10.06.2015

1.6 DRAWING

L	T	D
-	-	8

Drawing skill for various products of saddlery. Items indlude- Irisl martingale, Stirrup leathers, Bridle headpiece, Knee insert, seaming exercises, Forepiece, driving bridle headpiece, rolled throat, face drop, foal slip, head collar, nosebands, running martingale, snaffle bridle, flexible points, girth web, seat, fitting flaps and forepiece, fitting grith straps, gullet lining, fitting staples, saddle nails and deeps, preparation of panel parts, machine panels, strap bearings, closing and flocking panel, marathon driving bridle, saddle, braces, backbend, bellyband, shaft tugs, crupper and dock, reins and neck strap.

At least 20 sheets on above

Corrected and Approved by B.T.E. On Dated 10.06.2015

II Semester

2.1 APPLIED MATHEMATICS I (B)

[Common to All Engineering Courses]

L	T	P
3	2/2	-

Rationale:

The study of mathematics is an important requirement for the understanding and development of any branch of engineering. The purpose of teaching mathematics to diploma engineering students is to impart them basic knowledge of mathematics which is needed for full understanding and study of engineering subjects.

S.N.	Units	Coverage Time L	T	P
1.	Integral Calculus-I	12	4	-
2.	Integral Calculus-II	12	4	-
3.	Coordinate Geometry (2 Dimensional)	10	3	-
4.	Coordinate Geometry (3 Dimensional)	8	3	-
		42	14	-

DETAILED CONTENTS:

1. INTEGRAL CALCULUS - I : (14 Marks)

Methods of Indefinite Integration :-

1.1 Integration by substitution.

1.2 Integration by rational function.

1.3 Integration by partial fraction.

1.4 Integration by parts.

2. INTEGRAL CALCULUS -II :(14 Marks)

2.1 Meaning and properties of definite integrals, Evaluation of definite integrals. Integration of special function.

2.2 Application : Finding areas bounded by simple curves, Length of simple curves, Volume of solids of revolution, centre of mean of plane areas.

2.3 Simposns 1/3rd and Simposns3/8th rule and Trapezoidal Rule : their application in simple cases.

3. CO-ORDINATE GEOMETRY (2 DIMENSION):(14 Marks)

3.1 CIRCLE :

Equation of circle in standard form. Centre - Radius form, Diameter form, Two intercept form.

3.2 Standard form and simple properties

Parabola x2=4ay, y2=4ax,

Ellipse $\frac{x^2}{a^2} + \frac{y^2}{b^2} = 1$

Hyperbola $\frac{x^2}{a^2} - \frac{y^2}{b^2} = 1$

4. CO-ORDINATE GEOMETRY (3 DIMENSION):(8 Marks)

4.1 Straight lines and planes in space -

Distance between two points in space, direction cosine and direction ratios, Finding equation of a straight line and Plane (Different Forms),

4.2 Sphere $x^2 + y^2 + z^2 + 2gx + 2fy + 2wz = d$ (Radius, Centre and General Equation)

Corrected and Approved by B.T.E. On Dated 10.06.2015

2.2 APPLIED PHYSICS-II

[Common to All Engineering Courses]

L	T	P
3	2/2	4

Rationale:

Engineering physics is a foundation Course. Its purpose is to develop proper understanding of physical phenomenon and scientific temper in the students. While teaching the subject,teachers should make maximum use of demonstrations to make the subject interesting to the students.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Topics	L	T	P
1.	Optics	4	1	-
2.	Introduction To Fiber Optics	4	1	-
3.	Laser & its Application	4	1	-
4.	Electrostatics	4	1	-
5.	D.C. Circuits	4	1	-
6.	Magnetic Materials & Their Properties	4	1	-
7.	Semi Conductor Physics	4	1	-
8.	Introduction Diode & Transistors	4	2	-
9.	Introduction To Digital Electronics	4	2	-
10.	Non-conventional energy sources	6	3	-
		42	14	56

1. Optics (4 Marks)

Nature of light, Laws of Reflection and Refraction, Snell's Law, Interference (Constructive and Deotructive), Diffraction and Polarization (Concept Only), Law of Mallus and Polaroids.

2. Introduction To Fibre Optics :(5 Marks)

Critical angle, Total internal reflection, Principle of fibre optics, Optical fibre, Pulse dispersion in step-index fibres, Graded index fibre, Single mode fibre, Optical sensor.

3. Lasers and its Applications (4 Marks)

Absorbtion and Emission of energy by atom, Spontaneous and Stimulated Emission, Poluation inversion, Main component of laser and types of laser- Ruby Laser, He-Ne laser and their applications. Introduction to MASER.

4. Electrostatics :(4 Marks)

Coutomb's Law, Electric field, Electric potential, Potential energy, Capacator, Energy of a charged capacitor, Effect of dielectric on capacators.

5. D.C. Circuits (5 Marks)

Ohm's Law, Kirchoff's Law and their simple application,

Corrected and Approved by B.T.E. On Dated 10.06.2015

Principle of Wheat Stone bridge and application of this principle in measurement of resistance (Meter bridge and Post Office Box); Carey Foster's bridge, potentiometer.

6. Magnetic Materials and Their Properties: (5 Marks)

Dia, Para and Ferro-magnetism, Ferrites, Magnatic Hysteresis Curve and its utility. Basic idea of super conductivity, Meissner's effect.

7. Semiconductor Physics (4 Marks)

Concept of Energy bands in soldis, classification of solids into conductors, insulators and semiconductors on the basis of energy band structure. Intrinsic and extrinsic semi conductors, Electrons and holes as charge carriers in semiconductors, P-type and N-type semiconductors.

8. Junction Diode and Transister : (6 Marks)

Majority and Minority charge carriers,P-N junction formation, barrier voltage, Forward and reverse biasing of a junction diode, P-N junction device characteristics, Formation of transistor, transistor-action, Base, emitter and collector currents and their relationship LED's.

9. Introduction To Digital Electronics : (6 Marks)

Concept of binary numbers, Interconversion from binary to decimal and decimal to binary. Concepts of Gates (AND, NOT, OR).

10. Non-conventional energy sources: (7 Marks)

(a) Wind energy : Introduction, scope and significance, measurement of wind velocty by anemometer, general principle of wind mill.

(b) Solar energy: Solar radiation and potentiality of solar radiation in India, uses of solar energy: Solar Cooker, solar water heater, solar photovoltaic cells, solar energy collector.

Corrected and Approved by B.T.E. On Dated 10.06.2015

PHYSICS LAB

Note: Any 4 experiments are to be performed.

1. Determination of coefficient of friction on a horizontal plane.

2. Determination of 'g' by plotting a graph T2 verses l and using the formula g=4n2/Slope of the graph line

3. Determine the force connstant of combinationof springs incase of 1. Series 2. Parallel.

4. To verify the series and parallel combination of Resistances with the help of meter bridge.

5. To determine the velocity of sound with the help of resonance tube.

6. Determination of viscosity coefficient of a lubricant by Stoke's law.

7. Determination of E1/E2 of cells by potentio meter.

8. Determination of specific resistance by Carry Foster bridge.

9. Determination of resitivity by P.O.Box.

10. Verification of Kirchoff's Law.

11. To draw Characteristics of p-n Junction diode.

12. To measure instantaneous and average wind velocity by indicating cup type anemometer/hand held anemometer.

NOTE :

Students should be asked to plot a graph in experiments (where possible) and graph should be used for calculation of results. Results should be given in significant figures only.

Corrected and Approved by B.T.E. On Dated 10.06.2015

2.3 INTRODUCTION TO COMPUTER

[Common with Civil Engg., Civil (Spl. With Rural), Mechanical Engg.,(Specialisation in Production, Automobile, Refrigeration and Air conditioning), Electronics Engg.,Instumentation and Control Engg., Dairy Engg., Leather Technology, Footwear and Leather Goods Tech., Cermics, Chemical Engg.(Four year Sandwitch), Chemical Tech. (Rubber & Plastic), Chemical Tech. (Fertilizer)]

L	T	P
2	-	5

Rationale:

Computers are being used for design and information processing in all branches of engineering. An exposure to fundamentals of computer programming is very essential for all diploma holders. this subject has been included to introduce students in the use and application of computers in engineering.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage L	T	Time P
1.	Introduction to Computer	4	-	-
2.	Introduction To Operating System (MS DOS/Windows)	3	-	-
3.	Word Processing	4	-	-
4.	Worksheet	4	-	-
5.	Presentation	4	-	-
6.	Data Base Operation	3	-	-
7.	Introduction to Internet	2	-	-
8.	Introduction to advance tools	4	-	-
		28	-	70

DETAILED CONTENTS

1. Introduction to Computer:

   A. Block Diagram of Computer.
   B. Types Of Computer
   C. Types of Input and Output devices
   D. Memories Devices (Its Types and Basic).

2. INTRODUCTION TO OPERATING SYSTEMS (MS-DOS/MS-WINDOWS:)

   What is operating system, its significance, Commands of DOS, Features/Application of window.

3. WORD PROCESSING:

   File : Open, Close, Save, Save as, Search, Send to, Print Preview, Print and Page Setup
   Edit : Cut, Copy,Paste, Office Clipboard, Select All, Find, replace, Goto, etc.
   View : Normal/Web Layout/Print Layout; Tool Bars; Header/Footer; Zoom, etc.
   Insert: Break, Page Number, Date & Time, Symbol, Comment,

Reference, etc.
Format: Font, Paragraph, Bullets & Numbering, Borders & Shading, Column, Change case, Back ground, etc.
Tools : Spelling & Grammer, Language, Word Count, Letters & Mailing, Options, Customize, etc.
Table : Draw, Insert, Delete, Select, Auto Format, AutoFit, Convert, Sort, Formula, etc.
Mail Merge

4. WORKSHEET:

Introduction, Use of Tools/Icons for preparing simple Mini Project.

5. PRESENTATION :

Introduction, Use of Tools/Icons for preparing simple presentation on Power Point.

6. DATABASE OPERATION :

Create database using MS Access, Create Table and Creating Reports.

7. Introduction to Internet:

What is Network, How to send & receive messages, Use of Search Engines, Surfing different web sites. Creating Mail ID, Use of Briefcase, Sending./replying emails.

8. INTRODUCTION TO ADVANCE TOOLS :

I. Steps requires to solving problems.
A. Flow Chart
B. Algroithm
C. Programming

II. Use of advance Tools such as Skype, Teamviewer, Installation of Modem, use of WiFi, Etc.

Corrected and Approved by B.T.E. On Dated 10.06.2015

INTRODUCTION TO COMPUTER LAB

List Of Practicals

1. Practice on utility commands in DOS.

2. Composing, Correcting, Formatting and Article (Letter/Essay/ Report) on Word Processing tool Word and taking its print out.

3. Creating, editing, modifying tables in Database tool.

4. Creating labels, report, generation of simple forms in Database tool.

5. Creating simple spread sheet, using in built functions in Worksheet tool..

6. Creating simple presentation.

7. Creating mail ID, Checking mail box, sending/replying e-mails.

8. Surfing web sites, using search engines.

Note : In the final year, related students have to use the concept of MS Word/MS Excel/MS Access/ MS Power Point in their respective branch's project work such as creating project report through MS Word/Creation of statistical data in MS Excel/Creation of database in MS Excel/ Demonstration of project through Power Point Presentation.

Corrected and Approved by B.T.E. On Dated 10.06.2015

2.4 OCCUPATIONAL SKILLS

L	T	P
4	-	-

1. BACKGROUND OF SADDLERY INDUSTRY :

   History and evolution of sports and skills in the world, saddlery as an integral part of equestrian sports.

   Beginning of saddlery manufacture in India, its growth and development, various phases of development, its SWOT analysis, employment and exports potentials, ways and means of to exploit this potential, major bottlenecks and solutions thereof.

2. EQUINE AND EQUESTRIAN SPORTS :

   Breeds of horse, Carring for horse.

3. THE HORSE AND ITS CHARACTERISTICS :

   Equestrains sports i.e. Riding, dressage, show jumping, driving, Westran riding, other equestrains,sports. Illness and disorders, A horse of your owns.

4. OCCUPATIONAL HEALTH AND SAFETY :

   Safety management, Industrial safety, Planning for safety, Directing for safety, Safety education and training, Employee participation in safety, Organizational behavior and safety, Management information system for safety.

5. SAFETY AND THE LAW :

   Factories Act 1948 and the factories rules, ILO convention and recommendations, Social security legislations, other important legislation.

6. INDUSTRIAL HYGIENIC AND OCCUPATIONAL HEALTH :

   Chemical Hazards, Personal Protective equipments, Occupational health, Work physiology, Occupational health and safety, Management System - OHSAS 1700.

Corrected and Approved by B.T.E. On Dated 10.06.2015

2.5 BASIC SKILLS

L	T	P
4	-	4

1. INTRODUCTION OF STRAPPING GOODS :

History of Bridles, tools needed for making Bridlework, Leather selection for bridle, Colour, Fittings. Purpose and different style of bridle i.e. riding bridle, In-hand bridle and driving bridles. Head coller, Purpose and types of head collars. Martingale, purpose and types martingale. Breast plate, Purpose and types of breast plate. Girth, purpose and types of girth. Reins, purpose and types of reins. Noseband and types of Nosebands.

2. BASIC STRAPPING GOODS (PRACTICAL) :

Process of making bridle : cutting, edging, dying the edges, polishing the dyed edges, creasing, marking up, skiving off points, buckle returns and platforms, stitching trimming off, blocking loops. Bridles and Reins, Martingale.

3. INTRODUCTION OF SADDLE :

History of saddles, tools needed for making of saddle, leather selection for Saddle, fittings.

Purpose and different style of saddle i.e. General purpose, Jumping saddle, Dressage saddle, Stock saddle, Western saddle, Close contact, Polo saddle, etc.

4. BASIC SADDLE MAKING (PRACTICAL) :

Process of making saddle : Cutting, edging, dying the edges, polishing the dyed edges, creasing, making up, skiving off points, buckle returns and platforms, stitching, trimming off. Setting of patterns, Components preparation, Knee Pad, Knee Roll, Seaming, Fixing and attachment.

5. INTRODUCTION OF HARNESS :

History of harness, tools needed formaking of harness, leather selection for Saddle, fittings. Purpose and different style of Harness i.e. Driving harness set (Single and Double), Racing and trotting harness set (Single and Double).

6. BASIC HARNESS (PRACTICAL) :

Process of making Harness : cutting, edging, dying the edges polishing the dyed edges, creasing, marking up, skiving off points, buckle returns and platforms, stitching, timming off, blocking loops. Saddle (Harness), Breeching

Corrected and Approved by B.T.E. On Dated 10.06.2015

2.6 SADDLERY WORKSHOP

L & P
<-14-->

1. INTRODUCTION TO HAND TOOLS :

Use and demonstration of cutting tools e.g. Round knives, head knives, shoemaker knives, clicking knife handle; Use and demonstration of edging tools e.g. Edge shaver No. 1-6 and pointed chisel 1/2" and 1.5"; Use and demonstration of 7" screw compass, 5" seat awl, Saddler hammer, Harness hammer, Aluminum smashers; Use and demonstrationof seam turner, coolar maker palm bent, Saddler pliers, Saddler pincers and Nail claws, Mallet, Dead blow hammer; Use and demonstation of 6" splitting m/c 5" plough gauge, washer cutter, strap cutter; Use and demonstration of bone folder, Loop iron stick and martingale groovers; Use and demonstration of creasing tools i.e. single creaser, screw creaser, bevel creaser, double creaser and edge iron; Use and demonstration of hole punches i.e. Round hole punch, oval punch, crew punch, Pippin hole punch, revolving punch pliers punch pliers wad punch; Use and demonstration of stitch marker, American race, Skirt shaver, double race, Screw race.

2. BASIC HAND TOOL CARE :

Sharpening and maintaining of round knives, Sharpening of edge shaver and hole punches, Awl sharpening, Cleaning of hand tools, Placing of hand tool.

3. BASIC SHAPE CUTTING PRACTICES :

Cutting of various shape leather, Point making i.e. Bridle point, Egg point, etc.,Skiving by hand practices.

4. BASIC HAND STITCHING PRACTICES :

Stitching practices, double hand, Single hand stitching.

5. BASIC MACHINE STICHING :

Machine types, Machine setup and operation, stitch formation, types of seam and edges, stitching different shapes- straight, curves, corners and peaks, Needle and threads, Faults associated with stitch formation and their correction, Safety, Basic operation skill, Maintenance.

6. MACHINE SKILL (THEORY AND PRACTICAL BOTH) :

Machine type, Machine setup, Basic operation skill, Safety, Maintenance of following machine :-

Strap cutting machine, Beam cutting press, Splitting machine, automatic edge inking machine, Edge grinder and finishing machine, Pneumatic end thinning machine, Automatic and manual hole punching machine, Edge folding machine, Cementing or Gluing machine, Eyeleting machine, Double riveting machine, Hot air thread burner machine, Automatic milling and brushing machine, Pneumatic stamping machine, Hot ruling machine, Flat bed (Heavy and Medium duty) machine, Long arm (Heavy and Medium duty) machine, Skiving machine, Manual and pneumatic stitching machine

Corrected and Approved by B.T.E. On Dated 10.06.2015

III Semester

3.1 SADDLE (Concept, Classification, Application)

L T P

1. THE HORSE : Elementary Machines

The Skeleton, The Muscles, Points of the horse, Outline of the Horse, The Hault, The JUmp, The Gaits : Walk, Trot, Canter, Gallop, Breed of horse and sizing (Head and Wither differences).

2. THE RIDER : Elementary Machines

The Skeleton, The Muscles, Male and Female differences, The rider's postures, The rider's seat, The Rider's leg, The Rider's hands, Rider's position at walk, Rider's position at trot, Rider's position at canter, Riders position at gallop, Rider's position when jumping.

3. HORSE AND RIDER : Elementary Mechanics

Getting into the saddle, At the halt, In movement communications, Straight lines, Circles, Turns, Gaits - Correct and Incorrect, Horse and Rider jumping.

4. SADDLE TREES, CONSTRUCTION AND PANEL :

Stirrup bars, Adjustable bars, Adjustable head plate, Finishing the tree, Shapes and fittings, B.S.I. tree, Criticism of the spring tree, The plastic tree, Construction, Preparing the tree, Panels, Panel types, Synthetics, Sources.

5. SADDLE FITTINGS :

Tree fits, The principles, Relevance of condition, Results of bad fitting, Saddles for children, Girth fitting, Riders considerations, Numnahs and wither pads, People numnah.

6. Developments of Modern Saddle.

7. SADDLE TYPES :

Dressage, Jumping, General Purpose, Long distance, Show saddles, Polo, racing, Children's saddle, Western and their equipment.

8. GRITHS AND BREASTPLATES :
Girths - Breastplates, English and US differences.

9. STIRRUPS LEATHER AND STIRRUPS IRONS :
Stirrup leather, Stirrup Irons, Breast collar.

10. BOOTS AND THE PROTECTION OF THE LEGS :
Boots, Bandages

11. The care and repair of saddlery.

12. Machine on saddle, safety points, solicited joint, weakness main points.

Corrected and Approved by B.T.E. On Dated 10.06.2015

3.2 BRIDLE (Concept, Classification, Application)

L	T	P
8	-	-

1. A short history of bridles and bits

2. TYPES OF BRIDLE :

   Riding Bridle : Snaffle bridle, Leading - rein snaffle bridle, Pony show bridle weymouth, Plain snaffle bridle, Plain weymouth bridle, Show weymouth for cob and hunter, gag bridle, Police horse bridle, Hackamore or bitless bridle. Western bridle, Ear, California, Briaded.

   In-Hand Bridles : Stallion in hand bridles, Rolled in-hand bridle, Rolled Arab slip, Couplings, Show slips and young stock bridles, Materials in-hand bridles, Web slip.

   Driving Bridles : Hackney bridle, Variations in design.

3. PRESSURE POINTS :

   Four pressure points within points. Three external pressure points to the mouths.

4. Assessing the structure of the horse's head and mouth.

5. USE OF EXTERNAL AND INTERNAL AIDS :

   Cavession nosebands, Crank noseband, flash noseband, Drop nosehand, grackle noseband, Kineton noseband, Bucephalus noseband, Bit guards, Bristle bit guards, Tongue layer, tongue grids.

6. BIT ACCESSORIES :

   Single - link curb chain, Double link curb chain, Flat link or polo curb chain, Elastic curb strap, Leather curb strap, Jodhpur curb chain, Rubber curb guard, flat or circle curb chain hooks, Bit snaps, Bit straps jelly curb guard, Lip strap, Pelham rounding, Fulmer keepers or guides, Australian cheeker, Latex.

7. Bitting Material
8. Measuring.
9. Working of different types of bits.
10. Fitting of different types of bits.
11. HEAD COLLARS :

    Albert headcollar, Youngstock headcollar, Showing headcollar, Foal slip.

12. REINS :

    Plain leather reins, Leather reins with stops, Half rubber hand parts, Laced hand parts, Plaited reins - leather - web, rubber-grip hand parts, Continental web jumping reins, All web reins, Coupling reins, Grass reins, Leading for showing in hand, Web-leather-lengths, Handles-Billets-Rubber grip, US reins. Reins billets - Hook-stud billet-Darlington loops, Argentinian billets.

Corrected and Approved by B.T.E. On Dated 10.06.2015

3.3 COMPUTER APPLICATION

L	T	P
4	-	8

1. MS-EXCEL :

   Introduction, Auditing a workbook, Comments inserting, Formulas that make decisions, Header sand footers, Merging workbooks, Outlines, Printing column and row lebels on every page, Protecting a workbook, ranges naming, reference, Seeking goals, Sheet naming, Styles, Working with workbooks, Worksheet fitting on a page.

2. MS-POWER POINT :

   Introduction, Audienceh and outs, Freehand drawing, Objects outlines, Placeholders, Slides, Speaker notes, Creating presentation using auto content wizard, Creating new presentation, Working in out view, Creating presentation from template, Working in outline view, Working in slide sorter view, Making slide show, Organization charts and tables, Menu command and toolbar.

3. MS-ACCESS :

   Creating database using the wizard in access, Working with t ables, Working with reports, Autoformat for the report, viewing a report, Creating charts, Creating label.

4. COREL DRAW 10 :

   Introduction, Working with text and lines, Working with shapes and objects, working with outlines and files, working with curves, special effects.

5. AUTOCAD 2000 :

   Introduction, Menu commands, Using 2D tools in Autocad 2000, Using text in Autocad, Other feature (Zoom tools, Pan tools, Hatching, etc.), Surface tools of Autocad, The rendering tools in Autocad.

6. PHOTOSHOP 6 :

   Introduction, Using tools (Move tool, Losso tool, Magic wand tools, etc.,) understandiang colours, Using transformation, Using paints, Adding text to picture, Adding actions, Filters of Photoshop.

Corrected and Approved by B.T.E. On Dated 10.06.2015

3.4 SADDLE : FABRICATION(Workshop)

L	T	P
-	-	8

1. Prepare Tree, Fit flexible points, Fit Girth Web.
2. Fit seat foam, Draw on seat.
3. Designs flaps and skirts, Prepare backs, Flaps and skirts.
4. Designs and make knee grips.
5. Mark and seam seat.
6. Pull on.
7. Prepare girth straps.
8. Make forepiece.
9. Fit flaps, Fit girth straps.
10. Fit gullet lining, Fall down staples and dee's
11. Prepare panel patterns, cut out and prepare panel backs, linings gussets, facing and pirrelli roll covers.
12. Prepare pirrelli roll
13. Machine panel, Close facing turn out.
14. Design, prepare and fit strap bearing
15. Flock knee rolls, Close panel and flock panel
16. Lace in, finish off and inspect.

Corrected and Approved by B.T.E. On Dated 10.06.2015

3.5 BRIDLE : FABRICATION(Workshop)

L	T	P
-	-	8

1. Making of reins.
2. Making of foal slop
3. Making of headcollar.
4. Making of one ear US bridle.
5. Making of running martingale
6. Making of snaffle bridle and noseband.

Corrected and Approved by B.T.E. On Dated 10.06.2015

IV Semester

4.1 HARNESS (Concept, Classification, Application)

L	T	P
6	-	-

1. INTRODUCTION :

   Historical background, Purpose of harness set, Parts and its resistance.

2. TYPES OF HARNESS :

   One horse harness set, Two horse harness set, Collar, Breast collar, US harness set, Continental harness set, Difference between continental and US harness set.

3. DRIVING EVENTS :

   Dressage, Marathon, Obstacle driving.

4. HORSES :

   Shape of horse and horse size.

5. CARRIAGE MECHANICS :

   Two wheel system, Four wheel system, Marathon, Wagon.

Corrected and Approved by B.T.E. On Dated 10.06.2015

4.2 GENERAL CONCEPTS AND APPLICATION OF MANAGEMENT

L	T	P
12	-	-

1. MANAGEMENT CONCEPTS AND EVOLUTION :

Concept and significance of management; Management as science or art, as a profession, distinction between management and administration. Roles and responsibilities of management; Principles of management; Evaluation of management, Functionof management.

Concept and significance of business environment; Interplay between business unit and environment; Social responsibilities of business, Business ethics; Industrial policy; Monetary Policy; Fiscal Policy; Foreign captial and foreign collaboration; Multinationals in India.

2. MARKETING MANAGEMENT :

Concept and functions of marketing. Marketing mix; Market segmentation and product differentiation; Product modification and product life-cycle. Consumer motivation and behaviour; Demand forecasting. Sales promotion; Advertising; Salesmanship, Role and techniques of marketing. Rural Marketing in India.

3. PRODUCTION MANAGEMENT :

Meaning and nature of production management. Types of production systems. Production planning and control, Plant location and site selection. Plant layout and materials handling. Value analysis, Inventory control; ABC analysis : Determiation of EOQ, Recorder point and safety stock, Waste Mangement.

4. FINANCIAL MANGEMENT :

Meaning and scope. Estimating the Firm's financial requirements; Sources of finance, Captial structure determination; Cost of capital; Working capital management; Management of long-term funds; Capital market; Leasing and sub- contracting; Investment decision and appraisal, Preparation, Analysis and Interpretation of financial statements, Cash flow and funds flow analysis.

5. HUMAN RESOURCE MANAGEMENT :

Nature, scope and significance of Human Resources, Recruitment and Training, Human Resource Development; Promotion and Transfer; Performance Appraisal; Job evaluation and Merit rating, Wages and Salary administration; Worker's participation in management, Collective Bargaining, Discipline and Grievance handling; Trade Unionism in India.

Corrected and Approved by B.T.E. On Dated 10.06.2015

4.3 EXPORT MANAGEMENT

L	T	P
8	-	-

1. INTRODUCTION TO EXPORT MARKETING :

   Why countries trade, importance of international trade, motivation to export, importance of export to India, export prospects for small firms, steps involved in export marketing.

2. RECENT TRENDS AND DEVELOPMENT IN WORLD TRADE AND TRADING SYSTEM :

   Role of foreign trade, Broad trends in world trade - its growth, regional distribution and composition, important developments in world trading systems, development of WTO.

3. TRENDS IN INDIA'S EXPORT TRADE :

   Role of exports in the Indian economy, major market for India's export, Importance of exports in India's economy, Latest trends in the compositions and direction of Indian export.l

4. SOURCES OF EXPORT TRADE INFORMATION :

   Important publication that can provide useful information to an exporter, Function of export promotion councils and commodity boards, role of import promotion centers and various sources of export trade information.

5. SELECTION OF PRODUCTS :

   Various factors that influence the selection of products, methods of identifying potenial success, country's image and its export planning strategy, suitability of an export product, recent trends in the world marketing scene.

6. IDENTIFICAITONS OF EXPROT MARKETS :

   Advantages of concentrating on few markets and avoid spreading marketing to thinly, criteria for segmenting the world market, Process of eliminating the impossible or difficult to enter segment, step-by-step approach of appraising short listed countries, need and how to go about achieving in country segmentation.

7. PRODUCT PLANNING FOR EXPORTS :

   Meaning of product, two main product design strategies, importance of packaging and need for packaging adoptations.

8. EXPORT MARKETING CHANNELS :

   Alternative channel in export marketing, Widespread use of agents in export marketing, Modal agency profile for an export marketing company, Selection of suitable agent, Agency agreement.

9. EXPORT PRICING :

Corrected and Approved by B.T.E. On Dated 10.06.2015

Various factors for making a pricing decision, Marginal pricing system and their applicability to export pricing, F.O.B., and C.I.F. costs of export products, Fixing the price of export product and prepare export quotations.

10. PROMOTING SALES ABROAD :

Natural significance and special problems of promoting sales in overseas markets, Information needs for planning a promotion campaign, Various alternatives methods of promoting sales, Selection the alternative most suitable for the product.

11. EXPORT CARGO INSURANCE :

Importance of proper cargo insurance, various type of risks that can be covered under marine insurance, marine cargo policies.

12. EXPORT SALES CONTRACT AND INCOTERMS :

Nature and export sales contract, meaning of various incoterms, General conditions in an export contract, settlements of disputes under export sales contract.

13. TERMS OF PAYMENT IN EXPORT :

Various terms of payment, bills of exchange arrangement, Meaning and operation of a letter of credit arrangement, important precaution that must be observed in using the L/C/ arrangement.

14. EXPORT FINANCE :

Various types of financial schemes available to Indian exporters, Methods and calculating the quantum of permissible bank finance at various stages in export business, role of EXIM bank in financing, facilitating and promoting the foreign trade of India, role of ECGC in protecting the exporters from the attendant risk of export operation.

15. FORMALTIES OF REPRESENTAION FOR EXPORTERS :

Different kind of registration needed for undertaking export business, application forms for registering, supporting documentation.

16. EXPORT DOCUMENTATION :

Reason for heavy documentation in export trade, Different kinds of commerical document, Features of legal regulatory document, important document required for claiming export benefits.

Corrected and Approved by B.T.E. On Dated 10.06.2015

4.4 HARNESS: FABRICATION(Workshop)

L	T	P
-	-	16

1. Making of driving bridle
2. Making of trace
3. Making of backband.
4. Making bellyband.
5. Making of saddle.
6. Making of shaft tug.
7. Making of crupper.
8. Making of breeching.
9. Making of hip strap
10. Making of reins
11. Making of martingale.
12. Making of breast collar.
13. Making of neck strap.
14. Making of traces holder.

Corrected and Approved by B.T.E. On Dated 10.06.2015

4.5 INDUSTRAL TRAINING

After the IV Sem. examination student will go for four weeks industrial training in small/medium size industry. It will be structured and supervised by the Institute.

Corrected and Approved by B.T.E. On Dated 10.06.2015

V SEMESTER

5.1 INDUSTRIAL MANAGEMENT AND ENTREPRENEURSHIP DEVELOPMENT

L	T	P
6	**2**	**-**

RATIONALE

The knowledge of this subject is required for all engineers/technicians who wish to choose industry/field as their career. This course is designed to develop understanding of various functions of management, role of workers and engineers and providing knowledge about industrial and tax laws.

TOPIC WISE DISTRIBUTION OF PERIODS

Sl.No.	Units	Coverage Time L	T	P
1.	Principles of Management	8	-	-
2.	Human Resource Development	10	-	-
3.	Wages and Incentives	4	-	-
4.	Human and Industrial Relations	6	-	-
5.	Professional Ethics	2	-	-
6.	Sales and Marketing management	10	-	-
7.	Labour Legislation Act	10	-	-
8.	Material Management	8	-	-
9.	Financial Management	8	-	-
10.	Entrepreneurship Development	8	-	-
11.	Fundamental of Economics	5	-	-
12.	Accidents and Safety	5	-	-
		84	-	-

DETAILED CONTENTS

1. **Principles of Management**
   - 1.1 Management, Different Functions: Planning, Organising, Leading, Controlling.
   - 1.2 Organizational Structure, Types, Functions of different departments.
   - 1.3 Motivation: Factors, characteristics, methods of improving motivation, incentives, pay, promotion, rewards, job satisfaction, job enrichment.
   - 1.4 Need for leadership, Functions of a leader, Factors for accomplishing effective leadership, Manager as a leader, promoting team work.
2. **Human Resource Development**
   - 2.1 Introduction, objectives and functions of human resource development (HRD) department.
   - 2.2 Recruitment, methods of selection, training strategies and career development.
   - 2.3 Responsibilities of human resource management – policies and functions, selection – Mode of selection – Procedure – training of workers, Job evaluation and Merit rating.
3. **Wages and Incentives**
   - 3.1 Definition and factors affecting wages, methods of wage payment.
   - 3.2 Wage incentive – type of incentive, difference in wage, incentive and bonus; incentives of supervisor.
   - 3.3 Job evaluation and merit rating.
4. **Human and Industrial Relations**
   - 4.1 Industrial relations and disputes.
   - 4.2 Relations with subordinates, peers and superiors.
   - 4.3 Characteristics of group behaviour and trade unionism.
   - 4.4 Mob psychology.
   - 4.5 Grievance, Handling of grievances.

Corrected and Approved by B.T.E. On Dated 10.06.2015

4.6 Agitations, strikes, Lockouts, Picketing and Gherao.
4.7 Labour welfare schemes.
4.8 Workers' participation in management.

5. **Professional Ethics**
5.1 Concept of professional ethics.
5.2 Need for code of professional ethics.
5.3 Professional bodies and their role.

6. **Sales and Marketing management**
6.1 Functions and duties of sales department.
6.2 Sales forecasting, sales promotion, advertisement and after sale services.
6.3 Concept of marketing.
6.4 Problems of marketing.
6.5 Pricing policy, break even analysis.
6.6 Distribution channels and methods of marketing.

7. **Labour Legislation Act (as amended on date)**
7.1 Factory Act 1948.
7.2 Workmen's Compensation Act 1923.
7.3 Apprentices Act 1961.
7.4 PF Act, ESI Act.
7.5 Industrial Dispute Act 1947.
7.6 Employers State Insurance Act 1948.
7.7 Payment of Wages Act, 1936.
7.8 Intellectual Property Rights Act

8. **Material Management**
8.1 Inventory control models.
8.2 ABC Analysis, Safety stock, Economic ordering quantity.
8.3 Stores equipment, Stores records, purchasing procedures, Bin card, Cardex.
8.4 Material handling techniques.

9. **Financial Management**
9.1 Importance of ledger and cash book.
9.2 Profit and loss Account, Balance sheet.
9.3 Interpretation of Statements, Project financing, Project appraisal, return on investments.

10. **Entrepreneurship Development**
10.1 Concept of entrepreneur and need of entrepreneurship in the context of prevailing employment conditions.
10.2 Distinction between an entrepreneur and a manager.
10.3 Project identification and selection.
10.4 Project formulation.
10.5 Project appraisal.
10.6 Facilities and incentives to an entrepreneur.

11. **Fundamental of Economics**
11.1 Micro economics.
11.2 Macro economics.

12. **Accidents and Safety**
12.1 Classification of accidents based on nature of injuries, event and place.
12.2 Causes and effects of accidents.
12.3 Accident-prone workers.
12.4 Action to be taken in case of accidents with machines, electric shock, fires and erection and construction accidents.
12.5 Safety consciousness and publicity.
12.6 Safety procedures.
12.7 Safety measures – Do's and Don'ts and god housing keeping.

Corrected and Approved by B.T.E. On Dated 10.06.2015

5.2 WESTERN SADDLE

L	T	P
8	-	-

1. History of western saddles-Origional and evaolution thereof.

2. TYPES OF WESTERN SADDLES :

   Nomenclature- Parts of the western saddle, Types of western saddles, Characteristics feature of saddles.

3. THE SADDLE TREE :

   Rawhide, trees, Ralide trees, The tree bars, Ralide trees versus rawhide trees, The cantles, The horns, Measuring the tree, Ordering the swells, Seat length.

4. THE RIGGING :

   The importance of the skeletal structure, Positions of the rigging rings, Rigging styles.

5. Safety.

6. The skirts.

7. The Jockeys

8. Padded seats.

9. THE FENDERS :

   Fenders and stirrup leathers, Fender lengths and stirrup leather lengths, Measuring the fender.

10. The stirrups.

11. LATIGO TIE STRAPS AND CINCH BILLETS :

    Attaching the latigo tie strap to the rigging ring, Beveling saddle strings and thongs, Making leather rosettes.

12. FLANK CINCH :

    Flank cinchas and breast collar attachments, Flank cinch billets, Flank cinchas, Making a "regular" flank cinch, Making a cinch with the roper's sleves.

13. Front cinch and the connecting straps.
14. Saddlery hardware.
15. Synthetic Points
16. Variation of western saddles- Endourance saddles, Long distance saddle, at all.
17. Finishing, Quality Control and Packing- With special reference to manufactured saddles.

Corrected and Approved by B.T.E. On Dated 10.06.2015

5.3 WORKSHOP

L	T	P
-	-	12

1. Fitting the saddle parts on the leather.
2. Adjustment of horn.
3. Under-gluing of gullet.
4. Under-gluing of seat.
5. Covering horn.
6. Covering front fork (braiding on both sides and front side).
7. Making skirt.
8. Making seat and assembling.
9. Covering back side of cantle.
10. Assembling skirt.
11. Making rear jockeyes.
12. Making filler for cheyenne roll and assembling.
13. Assembling seat and making cheyenne roll.
14. Over braiding border of Cheyenne roll.
15. Assembling rear jockeys.
16. Assembling seat on both sides & front sides (Including conchas and strings).
17. Making fenders.
18. Making stirrups.
19. Making strap (billet and tie strap)
20. Full assembly (girth)
21. Option back girth (roping).

Corrected and Approved by B.T.E. On Dated 10.06.2015

5.4 SADDLERY ACCESSORIES

L	T	P
8	-	12

1. Stable :

A. Stable Horse :

i. HORSE CLOTHING :

Rugs, Rollers and Surcingales, All purpose rugs, Anti-sweat sheets, Summer Sheets, Exercise Sheets, Hoods and Tail Cuards and their sizes.

ii. STABLE EQUIPMENTS :

Head Collars, Poll Pads, Lead and tie ropes, Hay Nets, Buckets, Skips and Grooming Tools, Tricks and Vices, Articles for injuries, halters.

iii. Boot and the protection of legs-Boots, Bandages.

B. Exercise Horse:

i. BREAKING AND SCHOOLING TACKLE :

Lunge cavesson, Lunge rein, The Roller, The crupper, Side reins, Lunge Whip, Ling reins, The importance of quality equipment, Breaking and mouthing bits, Whips.

ii. SPECIALIST TRACKLE :

Bending, Trackle, Dumb jockey, Overcheck, The Barnum.

2. Saddle Accessories :
Running Martingale - Rein stips, Cheshire martingale, Standing martingale - Polo standing martingale, Rubbers or Elastic inset standing martingale, Bib martingale, Irish Martingale, Attachment for breast plates- Running martingale attachment- Standing martingale attachment, Breast Plate, Standing Bosal.
3. Riders :
Spurs, Chaps, Gloves, rider's whips, Halmet, Riding boot, Breeches.
4. Leather Carving: (Linear, Plain and Figure Carving).

LIST OF PRACTICALS

1. Making of summer sheet.
2. Making of body roller.
3. Making of horse boots.
4. Exercises on leather stamping.
5. Irish Martingle.
6. Western Breast Plate.
7. Halter.
8. Braided Whip.
9. Stirrup Leather
10. Mini Chaps.

Corrected and Approved by B.T.E. On Dated 10.06.2015

VI Semester

6.1 ENVIRONMENTAL EDUCATION & DISASTER MANAGEMENT

L	T	P
4	-	-

RATIONALE:

A diplima student must have the knowledge of different types of pollution caused due to industrialisation and construction activities, so as he may help in balancing of eco-system and control pollution by providing controlling measures. They should be also aware of the environmental laws for effectively controlling the pollution of environment. The topics are to be taught in light of legislation Para-3.

TOPIC WISE DISTRIBUTION OF PERIODS:

SL. NO.	TOPIC	L	T	P
1.	Introduction	6		
2.	Pollution	4		
2.1	Water Pollution	8		
2.2	Air Pollution	8		
2.3	Noise Pollution	4		
2.4	Radio Active Pollution	6		
2.5	Solid Waste Management	6		
3.	Legislations	4		
4.	Environmental Impact Assessment	4		
5.	Disaster Management	6		
	TOTAL	56	-	-

DETAILED CONTENTS

1. INTRODUCTION :

- Basics of ecology, Ecosystem, Biodiversity Human activities and its effect on ecology and eco system, different development i.e. irrigation, urbanization, road development and other engineering activities and their effects on ecology and eco system, Mining and deforestation and their effects.

- Lowering of water level , Urbanization.

- Biodegradation and Biodegradibility, composting, bio remediation, Microbes .Use of biopesticidies and biofungicides.

- Global warning concerns, Ozone layer depletion, Green house effect, Acid rain,etc.

2. POLLUTION :

Sources of pollution, natural and man made, their effects on living environments and related legislation.

2.1 WATER POLLUTION :

Corrected and Approved by B.T.E. On Dated 10.06.2015

- Factors contributing water pollution and their effect.

- Domestic waste water and industrial waste water. Heavy metals, microbes and leaching metal.

- Physical, Chemical and Biological Characteristics of waste water.

- Indian Standards for qulity of drinking water.

- Indian Standards for quality of treated waste water.

- Treatment methods of effluent (domestic waste water and industrial/ mining waste water), its reuse/safe disposal.

2.2 AIR POLLUTION :

Definition of Air pollution, types of air pollutants i.e. SPM, NOX, SOX, GO, CO2, NH3, F, CL, causes and its effects on the environment.

- Monitoring and control of air pollutants, Control measures techniques. Introductory Idea of control equipment in industries i.e.

A. Settling chambers
B. Cyclones
C. Scrubbers (Dry and Wet)
D. Multi Clones
E. Electro Static Precipitations
F. Bog Fillers.

- Ambient air qulaity measurement and their standards.

- Process and domestic emission control

- Vehicular Pollution and Its control with special emphasis of Euro-I, Euro-II, Euro-III and Euro IV.

2.3 NOISE POLLUTION :

Sources of noise pollution, its effect and control.

2.4 RADISACTIVE POLLUTION :

Sources and its effect on human, animal, plant and material, means to control and preventive measures.

2.5 SOLID WASTE MANAGEMENT :

Municipal solid waste, Biomedical waste, Industrial and Hazardous waste, Plastic waste and its management.

3. LEGISLATION :

Preliminary knowledge of the following Acts and rules made thereunder-

- The Water (Prevention and Control of Pollution) Act - 1974.

- The Air (Prevention and Control of Pollution) Act - 1981.

- The Environmental Protection (Prevention and Control of Pollution) Act -1986. Rules notified under EP Act - 1986 Viz.

  # The Manufacture, Storage and Import of Hazardous Chemical (Amendment) Rules, 2000

  # The Hazardous Wastes (Management and Handling) Amendment Rules, 2003.

  # Bio-Medical Waste (Management and Handling) (Amendment) Rules, 2003.

  # The Noise Pollution (Regulation and Control) (Amendment) Rules, 2002.

  # Municipal Solid Wastes (Management and Handling) Rules, 2000.

  # The Recycled Plastics Manufacture and Usage (Amendment) rules, 2003.

4. ENVIRONMENTAL IMPACT ASSESSMENT (EIA) :

- Basic concepts, objective and methodology of EIA.

- Objectives and requirement of Environmental Management System (ISO-14000) (An Introduction).

5. DISASTER MANAGEMENT :

Definition of disaster - Natural and Manmade, Type of disaster management, How disaster forms, Destructive power, Causes and Hazards, Case study of Tsunami Disaster, National policy- Its objective and main features, National Environment Policy, Need for central intervention, State Disaster Authority- Duties and powers, Case studies of various Disaster in the country, Meaning and benifit of vulnerability reduction, Factor promoting vulnerability reduction and mitigation, Emergency support function plan.

Main feature and function of National Disaster Management Frame Work, Disaster mitigation and prevention, Legal Policy Frame Work, Early warning system, Human Resource Development and Function, Information dissemination and communication.

Corrected and Approved by B.T.E. On Dated 10.06.2015

6.2 INTERNATIONAL BUSINESS MANAGEMENT & TQM

L	T	P
6	-	-

1. INTERNATIONAL BUSINESS :An Overview:

   Introduction,Modes of international business, External influences on international business, Evoluation of strategy in the Internationalization Processes

2. FOREIGN DIRECT INVESTMENT :

   Introduction, The Meaning of foreign direct investment, The relationship of trade and factor mobility, Motivations for handling international business through direct investment, Market expansion- Investment versus trade, Resource-Acquisition investment, Diversification- Oriented investments, Political motives, Buy-versus build decision, Advantages of foreign direct investment, The strategy of direct investment in the internationalization process, direct investment patterns.

3. FOREIGN EXCHANGE :

   Introduction, Terms and definitions, How the foreign exchange market works, Convertibility, Exchange restriction, The use of foreign exchange, Market in internationalization process.

4. THE DETERMINATION OF EXCHANGE RATES :

   Introduction, The international monetary system, Exchange rate arrangements, The determination of exchange rate, Forecasting exchange rate-movements, Business implications of exchange rate changes.

5. MARKETING :

   Introduction, Market size analysis, Product policy, Marketing in internationalization process, Pricing, Promotion, Branding, Distribution.

6. EXPORT AND IMPORT STRATEGIES :

   Introduction, Export strategy, Export intermediaries, Foreign freight forwarders, Export financing, Counter trade, The import strategy.

7. GLOBAL OPERATION MANAGEMENTS AND SOURCING STRATEGIES:

   Introduction, Global manufacturing, Strategies in the Internationalization process, Quality, Global sourcing, Purchasing and supplier relations, Inventory systems, Product design.

8. HUMAN RESOURCE MANAGEMENT :

   Introduction, Management qualification and characterisitics, Internal managerial transfers, Management recruitment and selection, International development of managers, Human resource management in the internationalization process

Corrected and Approved by B.T.E. On Dated 10.06.2015

9. TOTAL QUALITY AND QUALITY MANAGEMENT :

What is quality, Total quality approach, Key element of total quality, Controbution of deming and juran, Why Total Quality efforts sometimes fail, The future of Quality Management.

10. QUALITY CULTURE :

Understanding what a quality culture is ? Activating Cultural Change, Laying the Groundwork for Quality Culture, Learning What a Quality Culture looks like, Countering Resistances to Cultural Change, Establishing a Quality Culture.

11 QUALITY TOOLS :

Total Quality defined , Pareto chart, Cause and effect diagram, Check sheet.

12. JUST IN TIME :

Just in time defined, rational for JIT, Development of JIT, Relationship of JIT to Total quality and World Class Manufacturing, Benefits of JIT, Requirements of JIT, Automation and JIT.

13. AN OVERVIEW OF ISO CERTIFICATION :

ISO- 9K Series (Quality), ISO-14K Series (Environment), ISO-18K Series (Occupational Health and Safety), Six Sigma and Its Impact on Business Operation.

Corrected and Approved by B.T.E. On Dated 10.06.2015

6.3 PROJECT

The project work is aimed at enabling the students to acquire professional expertise of conceiving and opernationalizing the practical and shop floor practices of the industrial environment that they are going to handle in future. Therefore the student will be assigned the following topics which broadly encompass the whole gamut fo saddlery industry.

These are as follows-

1. Establishment of saddlery unit having manufacturing capacity of 2500 best quality bridles.
2. Establishment of saddlery unit having manufacturing capacity of 2500 basic quality saddles.
3. Establishment of saddlery unit having manufacturing capacity of 1500 best quality western saddle.
4. Establishment of saddlery unit having manufacturing capacity 1000 set of best quality Harness set.
5. Establishment of saddlery unit having manufacturing capacity of 2500 best quality saddles.
6. Establishment of saddlery unit having manufacturing capacity of 2500 basic quality bridles.

This project should contain following points :

Set up Organization's and its objective:

1. Establishment of unit.
2. Requirement of land and building.
3. requirement of machines/tools
4. Manpower requirement.
5. Arrangement of Electricity.
6. Various registration with the appropriate authority.

Plan Layout:

1. Installation of Machines.
2. Allotment of minimum space for machinery.
3. Providing of sufficient light and other arrangement.

Investment needs

1. Working capital requirement.
2. Arrangement of wording capital through Bank/financial Institutions.

3. Overheads expenses requirement (Monthly)

- Raw Material Required :

Corrected and Approved by B.T.E. On Dated 10.06.2015

1. Requirement of leather
2. Requirement of fittings and components.
3. Requirement of other material

- Source of Raw Material :

1. List of best supplier of leather
2. List of best suppliers for fitting and components.
3. List of best supplier for other material.

- Costing/Break Even Point

1. Direct Cost material.
2. Fixed cost to the material
3. Price fixation.

- Sales and Marketing

1. Selection of market for our product.
2. Policy for promotion of product.
3. Physical distribution of items.
4. Services after sales.

- Quality/Finishing Aspects

1. Quality as per sample.
2. Quality as per specifications/size
3. After completion of items finishing as per international standard.

- Packaging and Packing :

1. Necessity according to customer.
2. Necessity of Freight carrier.
3. Necessity of Distribution.
4. Necessity according to govt. rules and regulations.

- HRM Policy
- Feasibility of Project
- Safety Measures.

Towards Plant and Machinery.
Towards Building and other equipments.
Towards man power.
Towards Environment

The above topic will be allotted either individually or in in group depending on the requirement of the issues involved therein.

Corrected and Approved by B.T.E. On Dated 10.06.2015

6.4 INDUSTRIAL TRAINING

The student will go for four weeks Industrial Training in a small/medium sized saddlery unit. This will be structured and supervised by the institute. The purpose of the training is to provide the students and exposure of the industrial set-up, Shop floor practices, Machinery, Equipments, Tools, Instruments and the practical skills involved in the day-to-day work.

Everybody will submit a report regarding one's observation which will necessarily comprise of the following-

1. An overview of the unit visited.
2. Units layout and its location, etc.
3. The product(s) being fabricated in the unit.
4. Machinery/equipments, tools and instruments being used.
5. Skill level of the workers and any arrangement for skill up-gradation.
6. Working conditions and social aspects.

The students will be evaluated at the institute level according to the study and evaluation scheme.

Corrected and Approved by B.T.E. On Dated 10.06.2015

6.5 ELECTIVE PAPER (ANY ONE)

L	T	P
4	-	16

There will be four elective out of which, each student will have to select one for detailed study. During the course of study, the student will be expected to know about the all possible aspects of the selected field of study, for instance, origin, evolution and classification thereof, their uses, methods of fabrication, mechanism and ergonomics, etc.

Regarding the practical aspects, the students will strive to achieve the basic skills of fabrication thereof so as to be able to fabricate/develop/produce any kind of variant based on the specifications to be made available to them at any point of time by anybody who may be a manufacturer/exporter/importer.

The Electives are as given below:

I. Saddle (European)
II Saddle (Western)
III. Bridle
IV. Harness

I. SADDLE (EUROPEAN) :

Types of Saddles

Dressage, Jumping, General purpose, Long distance, Show saddles, Polo, Racing and their equipment.

Event :

Dressage, Cross-country, Jumping event

Saddlery equipment and Their Safety Points :

Girths, stirrup leather, Stirrup iron, Breastplate, Martingale, Crupper, Saddle Pad, Bridle.

Evolution of Synthetic saddle and its market.

Students have to fabricate complete synthetic saddle.

II. SADDLE (WESTERN) :

Types of Saddles

All around saddle, Reiner Saddle, Roping saddle, Cutting saddle, Barrel saddle, Pleasure saddle, Buckaroo saddle, Pleasure saddle, Buckarro saddle.

Other Equipment :

Cinch, Back cinch and their safety points, Breast collar, Western bridle.

Event :

Cutting, Roping, Rodeo (Bareback saddle and Bronc saddle),

Barrel racing, Rigging system, Stirrups, Safety points, Carving techniques.

Students have to make carved western saddle.

III. BRIDLE :

Types of bridle, Safety points.

Students have to make bridle by using both synthetic web and leather material English and western style.

IV. HARNESS :

Types of harness set, Safety points of each parts.

Students have to make Gig harness set by using both synthetic web and leather material.

Corrected and Approved by B.T.E. On Dated 10.06.2015

STAFF STRUCTURE

1.	Director	01
2.	Technical Director	01
3.	Lecturer (Physics)	01(Guest Faculty)
4.	Lecturer (Mathematics)	01(Guest Faculty)
5.	Lecturer (Chemistry)	01(Guest Faculty)
6.	Lecturer (Management)	01(Guest Faculty)
7.	Lecturer (Drawing)	01(Guest Faculty)
8.	Registrar	01
9.	Associate Lecturer(Saddlery)	01
10.	Assistant Lecturer(Saddlery)	01
11.	Computer Programmer	01
12.	Technical Supervisor	02
13.	Demonstrator/Instructor	02
14.	Store & Purchase Supervisor	01
15.	Librarian	01
16.	Accountant	01
17.	Student Clerk/Typist	01
18.	Helpers/Class-IV	05

Note: Qualification of above staff as per U.P. Governemnt Service Rule.

Corrected and Approved by B.T.E. On Dated 10.06.2015

LIST OF EQUIPMENTS

Only those of the equipments given below which are essentially required for the conduction of practicals mentioned in the curriculum are to be procured by the institutions.

"Machine/Equipments/Instruments of old BTE list which are not included below are to be retained in the Lab/Shop for Demonstration purpose but not to be demanded fresh for purchase."

NOTE : Equipment for different shop and lab of latest verson should be purchased.

APPLIED PHYSICS LAB

S.No.	Name of Equipment	No.	@ Rs.	Amt.in Rs.
1.	Brass ball with hook 2 cm. dia	2	20	40
2.	Stop watch least count 0.1 Sec	4	500	1000
3.	Wall bracket with clamping arrangement	2	50	100
4.	Meter scale	5	20	100
5.	Searl's conductivity apparatus with copper & steel rods 25 X 4 cm. diameter with all accessaries	2 set	1000	2000
6.	Potentiometer - 10 wires with jocky	4	500	500
7.	Meterbridge complete	2	250	250
8.	Moving coil galvenometer	5	200	600
9.	Moving coil ammeter 0-1 amp., 0-5 amp., 0-10 amp., 1 no of each	8	250	750
10.	Moving coil voltmeter 0-1 V. 0-5 V., 0-10 V. 1 No of each	8	250	750
11.	Resonance Column of steel (with all accessories)	2		
12.	App. for determining coefficient of friction on a horrizontal plane	2 set	1000	1000
13.	Appratus for determining character-stics of P-N junction diode complete with all accessaries	2 set	1500	1500
14.	Post office box dial type with resistance boxes	2	1200	1200
15.	Physical balance with weight box	2	800	1600
16.	Rehostat of different ohm.capacity	16	250	2000
17.	Fortin's barometer with mercury	1	2500	2500
18.	Anemometer cup type	1	1000	1000
19.	Anemometer hand held	1	1000	1000
20.	Spring Force Constant Apparatus with accessories	2		
21.	Screw gauge	5set		
22.	Spherometer	2set		
23.	Halfmeter scale	5set		
24.	Vernier Callipers	5set		
25.	Viscosity Apparatus (Complete with accessories by Stokes method)	2set		
26.	Thermometer of different range	10set		
27.	Reynauld's Hudrometer	1set		
28.	Wall Thermometer	2set		
29.	Tuning Fork's Sets	3set		
30.	Carey Foster Bridge (With all accessories)	2set		

Corrected and Approved by B.T.E. On Dated 10.06.2015

S.No.	Name of Equipment	No.	@ Rs.	Amt.in Rs.
31.	Battery Eliminator of different types	4set		
32.	Battery Charger	1set		
33.	Standrad Cadiminum Cell	2set		
34.	Multimeter(Digital)_	1set		
35.	Sprit Level	2set		
36.	Drilling Machine	1set		
37.	Lab tables	8		
38.	Lab stools	30		
39.	LPG Gas Burner with Cylinder	1		
40.	Stop Clock	1		

Corrected and Approved by B.T.E. On Dated 10.06.2015

INTRODUCTION TO COMPUTER (Common to all Trades)

COMPUTER CENTRE

S.No.	DESCRIPTION	QTY.	APPROX. COST (in Rs.)
1.	Core-2 Quad Processor, 4GB RAM 1 GB SATA HDD, 19" TFT Monitor/ Server of Latest Specification OS-Windows 2007/2008/Latest Version	02 Server	1,20,000=00
2.	General Desktop Computer-Intel i5 or Higher(with latest Specification Pre loaded latest Anti Virus with Life time Subscription, Licence Media and Manual with UPS 660 VA with latest window OS Including licence OR Computer of latest Specification With latest window os including licence	60 node	36,00,000=00
3.	Software :((Latest Version)		
	i. MS OFFICE 2010/Latest Version	LS	LS
	ii COMPILER 'C', C++, JAVA-7	LS	LS
4.	Hardware	4,50,000.00	LS
	i. Switch-32 Port	02	
	ii. Router	02	
	iii. Hub	04(8 Port)	
	iv. Ext. Modem	02	
	v. Wireless N/W Adaptor	02	
	vi. Series Access Point	02	
	vii.LAN Cable Meter	05	
	viii. LAN Cable Analyzer	05	
	ix. Crimping Tool and all other accessories related to Networking	15	
5.	Scanner- Flat Bed A4/Auto Lighter (Bit depth 48)	02	20,000
6.	132 Column 600 CPS or faster 9 Pin dot matrix printer with 500 million character head life	02	50,000
7.	Laser Jet-A4 All In one 20 page per min (2 Each)	04	50,000
8.	Desk Jet-A4 Photo Smart (2 Each)	04	40,000
9.	5 KVA on line UPS with minimum 30 minute battery backup along with sealed maintenance free batteries. Provision for connecting external batteries with network connectivity.(For 2 Labs)	04	8,00000

Corrected and Approved by B.T.E. On Dated 10.06.2015

10.	Split Air Conditioner 1.5 tones capacity with ISI mark along with electronic voltage stabilizer with over voltage and time delay circuit	08	35,0000
11.	Room preparation and furniture	LS	
12.	19" rack, 24-port switch. connector RJ-45 Cat-6 cabling for network	LS	10,0000
13.	2 KVA Inverter Cum UPS	02	6,0000
14.	Fire Extinguisher (2 Kg.)	04	15000
15.	Fire Extinguisher (5 Kg.)	04	25000
16.	Vacuum Cleaner	02	25000
17.	LCD Projector 3000 Lumen with all Accessories	02	350000
18.	Pen Drive 16 GB	10	10000
19.	DVD Writer External	02	10000
20.	HDD External 500 GB	02	15000
21.	PAD (Latest Configuration)	02	15000
22.	Broadband For Internet(Speed Min. 8mbps)	04	LS
23.	USB Modem	02	8000
24.	Generator 15 KVA Water Coolant	01	450000

Corrected and Approved by B.T.E. On Dated 10.06.2015

LEARNING RESOURCE MATERIALS

1.	Overhead Projector with screen	1	--	20000
2.	35 m.m. Slide cum Film Projector	1	--	50000
3.	Audio Cassette Recorder	1	--	15000
4.	V.C.R. with Monitor & Accessories	1	--	35000
5.	Photography Camera for Production of slide and film strips, 35 mm still camera dark room equipment.	1		100000
6.	Mathematical Typewriter	1	--	50000
7.	Cutting, Binding & Stitching equipment.	1	--	30000

Corrected and Approved by B.T.E. On Dated 10.06.2015