



HYPEX Technology Pvt. Ltd.

Why Training with HYPEX Technology :

Expansion of technical institutions has certain disadvantages and one of them is besides having good academic knowledge students lack in practical and professional skills. We HYPEX Technology Private Limited help students to be practically and professionally sound and also motivate them to be frank and used to towards solving real life problems. We are trying to bridge the gap between academic and professional career growth. Our expert, experienced professionals are well versed in their respective domain. We are a team dedicated to give our best to shape the future of students.

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* T&C Application

STATE BOARD OF TECHNICAL EDUCATION, BIHAR

Scheme of Teaching and Examinations for V SEMESTER DIPLOMA IN MECHANICAL ENGG. (Effective from Session 2016-17 Batch)

THEORY

Sr. No.	SUBJECT	SUBJECT CODE	TEACHING SCHEME	EXAMINATION-SCHEME							
				Periods per Week	Hours of Exam.	Teacher's Assessment (TA) Marks A	Class Test (CT) Marks B	End Semester Exam.(ESE) Marks C	Total Marks (A+B+C)	Pass Marks ESE	Pass Marks in the Subject
1.	Advanced Manufacturing Processes	1625501	03	03	10	20	70	100	28	40	03
2.	Power Engineering	1625502	03	03	10	20	70	100	28	40	03
3.	Environmental Pollution & Control	1625503	03	03	10	20	70	100	28	40	03
4.	Metrology & quality Control	1625504	03	03	10	20	70	100	28	40	03
5.	Automobile Engineering	1625505	03	03	10	20	70	100	28	40	03
Total :-			15				350	500			

PRACTICAL

Sr. No.	SUBJECT	SUBJECT CODE	TEACHING SCHEME	EXAMINATION-SCHEME						
				Periods per Week	Hours of Exam.	Practical (ESE)		Total Marks (A+B)	Pass Marks in the Subject	Credits
						Internal(A)	External(B)			
6.	Metrology & quality Control Lab	1625506	04	03	15	35	50	20	02	
7.	Advanced Manufacturing Processes Lab	1625507	04	06	15	35	50	20	02	
Total :-			08				100			

TERM WORK

Sr. No.	SUBJECT	SUBJECT CODE	TEACHING SCHEME	EXAMINATION-SCHEME					
				Periods per Week	Marks of Internal Examiner (X)	Marks of External Examiner (Y)	Total Marks (X+Y)	Pass Marks in the Subject	Credits
8.	Industrial Project & Entrepreneurship Development (TW)	1625508	03	15	35	50	20	02	
9.	Professional Practices-V (TW)	1625509	04	15	35	50	20	02	
10.	Metrology & quality Control (TW)	1625510	03	15	35	50	20	01	
Total :-			10			150		24	
Total Periods per week Each of duration One Hour				33	Total Marks = 750				

INDUSTRIAL PROJECT AND ENTREPRENEURSHIP DEVELOPMENT- TW (MECH. ENGG. GROUP)

Subject Code 1625508	Term Work			Credits		
	No. of Periods Per Week			Full Marks	:	50
	L	T	P/S	Internal	:	15
	—	—	04	External	:	35
						02

Contents :Term Work

PART A) Industrial Project

Following activities related to project are required to be dealt with, during this semester

1. Form project batches & allot project guide to each batch. (Max. 4 students per batch)
2. Each project batch should select topic / problem / work by consulting the guide & / or industry. Topic / Problem / work should be approved by Head of department.
3. Each project batch should prepare action plan of project activities & submit the same to respective guide.
4. At the end of semester, each project batch should submit the action plan and abstract of the project along with list of materials required if project involves fabrication or other facilities required in other kinds of project.
5. Action Plan should be part of the project report.

Part B: Entrepreneurship Development OBJECTIVES:-

Students will be able to

- 1) Identify entrepreneurship opportunity.
- 2) Acquire entrepreneurial values and attitude.
- 3) Use the information to prepare project report for business venture. Develop awareness about enterprise management.

Contents		Hrs/week
Chapter	Name of the Topic	Hours
Unit-01	Entrepreneurship, Creativity & Opportunities 1.1) Concept, Classification & Characteristics of Entrepreneur 1.2) Creativity and Risk taking. 1) Concept of Creativity & Qualities of Creative person. 2) Risk Situation, Types of risk & risk takers. 1.3) Business Reforms. 1.3.1) Process of Liberalization. 1.3.2) Reform Policies. 1.3.3) Impact of Liberalization. 1.3.4) Emerging high growth areas. 4) Business Idea Methods and techniques to generate business idea. 5) Transforming Ideas into opportunities transformation involves Assessment of idea & Feasibility of opportunity 6) SWOT Analysis	03

Unit-02	<p>Information And Support Systems</p> <p>1) Information Needed and Their Sources. Information related to project, Information related to support system, Information related to procedures and formalities</p> <p>2) SUPPORT SYSTEMS</p> <p>1) Small Scale Business Planning, Requirements.</p> <p>2) Govt. & Institutional Agencies, Formalities</p> <p>3) Statutory Requirements and Agencies.</p>	03
Unit-03 03	<p>Market Assessment</p> <p>1) Marketing -Concept and Importance</p> <p>2) Market Identification, Survey Key components 3.3) Market Assessment</p>	02
Unit-04	<p>Business Finance & Accounts Business Finance</p> <p>1) Cost of Project</p> <p>1) Sources of Finance</p> <p>2) Assessment of working capital</p> <p>3) Product costing</p> <p>4) Profitability</p> <p>5) Break Even Analysis</p> <p>6) Financial Ratios and Significance Business Account</p> <p>2) Accounting Principles, Methodology</p> <p>1) Book Keeping</p> <p>2) Financial Statements</p>	03
Unit-05	<p>Business Plan & Project Report</p> <p>1) Business plan steps involved from concept to commissioning Activity Recourses, Time, Cost 5.2) Project Report</p> <p>1) Meaning and Importance</p> <p>2) Components of project report/profile (Give list) 5.3) Project Appraisal</p> <p>1) Meaning and definition</p> <p>2) Technical, Economic feasibility</p> <p>3) Cost benefit Analysis</p>	03
Unit-06	<p>Enterprise Management And Modern Trends 6.1) Enterprise Management: -</p> <p>1) Essential roles of Entrepreneur in managing enterprise</p> <p>2) Product Cycle: Concept And Importance</p> <p>3) Probable Causes Of Sickness</p> <p>4) Quality Assurance</p> <p>Importance of Quality, Importance of testing 6.2) E-Commerce</p> <p>Concept and process 6.3) Global Entrepreneur</p>	02
	Total	16

Text/ Reference Books:		
Titles of the Book	Name of Authors	Name of the Publisher
Entrepreneurship Development	E. Gordon .Natrajan	Himalaya Publishing. Mumbai
Entrepreneurship Development	Preferred by Colombo plan staffcollegeforTechnical education.	TataMcGrawHillPublishingco.ltd.NewDelhi.
A Manual on How to Prepare a Project Report	J.B.Patel D.G.Allampally	EDI STUDY MATERIAL Ahmadabad (Near Village Bhat , Via Ahmadabad Airport & Indira Bridge), P.O. Bhat 382428 , Gujrat,India P.H. (079) 3969163, 3969153 E-mail : ediindia@sancharnet.in / olpe@ediindia.org Website : http://www.ediindia.org
A Manual on Business Opportunity Identification & Selection	J.B.Patel S.S.Modi	
National Derectory of Entrepreneur Motivator & Resource Persons.	S.B.Sareen H. Anil Kumar	
New Initiatives in Entrepreneurship Education & Training	Gautam Jain Debmuni Gupta	
A Handbook of New Enterpreneurs	P.C.Jain	
Evaluation of Enterpreneurship Development Programmes	D.N.Awasthi , Jose Sebeastian	
TheSevenBusinessCrisis& How to BeatThem.	V.G.Patel	
Entrepreneurship Development of Small Business Enterprises	Poornima M. Charantimath	Pearson Education, New Delhi
Entrepreneurship Development	Special Edition for MSBTE	McGraw Hill Publication
Entrepreneurship Theory and Practice	J.S. Saini B.S.Rathore	Wheeler Publisher New Delhi
Entrepreneurship Development		TTTI, Bhopal / Chandigadh
Entrepreneurship in Action.	Mary Coulter.	Prentice Hall of India Pvt. Ltd., New Delhi.
Fundamentals of Entrepreneurship	Mohanty, S.K.	Prentice Hall of India Pvt. Ltd., New Delhi.

2) VIDEO CASSETTES

NO	SUBJECT	SOURCE
1	Five success Stories of First Generation Entrepreneurs	EDI STUDY MATERIAL Ahmedabad (Near Village Bhat , Via Ahmadabad Airport & Indira Bridge), P.O. Bhat 382428 , Gujrat,India P.H. (079) 3969163, 3969153 E-mail : ediindia@sancharnet.in / olpe@ediindia.org Website : http://www.ediindia.org
2	Assessing Entrepreneurial Competencies	
3	Business Opportunity Selection and Guidance	
4	Planning for completion & Growth	
5	Problem solving-An Entrepreneur skill	

GLOSSARY:

INDUSTRIAL TERMS

Terms related to finance, materials, purchase, sales and taxes.

Components of Project Report:

1. Project Summary (One page summary of entire project)
2. Introduction (Promoters, Market Scope/requirement)
3. Project Concept & Product (Details of product)
4. Promoters (Details of all Promoters- Qualifications, Experience, Financial strength)
5. Manufacturing Process & Technology
6. Plant & Machinery Required
7. Location & Infrastructure required
8. Manpower (Skilled, unskilled)
9. Raw materials, Consumables & Utilities
10. Working Capital Requirement (Assumptions, requirements)
11. Market (Survey, Demand & Supply)
12. Cost of Project, Source of Finance
13. Projected Profitability & Break Even Analysis
14. Conclusion.

PROFESSIONAL PRACTICES V - TW
(MECH.+CIVIL ENGG. GROUP)

Subject Code 1625509	Term Work			Credits 02		
	No. of Periods Per Week					
	L	T	P/S	Internal	:	07
	—	—	04	External	:	18

Contents :Term Work		Hrs/week
	Activities	Practical Hours
Unit-01	<p>Industrial Visits</p> <p>Structured industrial visits be arranged and report of the same shall be submitted by the individual student, to form a part of the term work.(2 visits) Following are the suggested types of Industries/ Fields–</p> <p>i)Automobile manufacturing / auto component manufacturing units to observe the working of SPM</p> <p>ii)Refrigeration andairconditioning manufacturing/ servicing units/ industries / workshops</p> <p>iii)Automobile service stations for fourwheelers</p> <p>iv)Co-ordinate measuring machine to observe its construction working specifications and applications.</p> <p>v)Auto Engine Testing unit to gather details regarding the testing procedures/parameters etc.</p> <p>vi)Wheel Balancing unit for light and/or heavy motor vehicles.</p> <p>vii)Food processing unit.</p> <p>viii)Textile industry machinery manufacturing / servicing units.</p> <p>ix)Hydro electric and Thermal power plants.</p> <p>x)Automotive Research Association of India, Pune, Central Institute of Road Transport, Pune, Vehicle Research and Development establishment , Ahmednagar.</p> <p>xi)Engine testing, exhaust gas analysis and vehicle testing</p> <p>xii)PWD workshop.</p> <p>xiii)Safety museum at Central Labour Institute, Sion, Mumbai</p>	08
Unit-02	<p>The Guest Lecture/s</p> <p>From field/industry experts, professionals to be arranged (2 Hrs duration), minimum 4 nos. from the following or alike topics. The brief report to be submitted on the guest lecture by each student as a part of Term work</p> <p>a)Electronic fuel injection systems</p> <p>b)Exhaust gas analysis.</p> <p>c)Vehicle testing.</p> <p>d)Transducer application in automobiles.</p> <p>e)Environmental pollution & control.</p> <p>f)Vehicle aerodynamics & design.</p> <p>g)Earth moving machines.</p> <p>h)Automobile pollution, norms of pollution control.</p> <p>i)Biotechnology</p> <p>j)Nanotechnology</p> <p>k)Rapid prototyping</p> <p>l)Programmable logic controllers</p> <p>m)TQM</p> <p>n)MPFI</p> <p>o)Hybrid motor vehicles</p> <p>p)Packaging technology</p> <p>q)Appropriate technology</p> <p>r)Six sigma systems</p> <p>s)LPG / CNG conversion kit.</p>	10

Unit-03	<p>Group Discussion :</p> <p>The students should discuss in group of six to eight students and write a brief report on the same, as a part of term work. The topic of group discussions may be selected by the faculty members. Some of the suggested topics are (any one)-</p> <p>i)CNG versus LPG as afuel. ii)Petrol versus Diesel as a fuel for cars. iii)Trends in automobile market. iv)Load shading and remedial measures. v)Rain water harvesting. vi)Trends in refrigeration Technology. vii)Disaster management. viii)Safety in day to daylife. ix)Energy Saving in Institute. x)Nano technology.</p>	10
Unit-04	<p>Seminar : (any 2 topics)</p> <p>Seminar topic should be related to the subjects of fifth semester / topics from guest lectures. Students shall submit a report of at least 10 pages and deliver a seminar (Presentation time – 10 minutes for a group of 2 students)</p>	12
Unit-05	<p>Mini Projects : (in a group of 4-5 students)</p> <p>1)Design / drawing of simple jigs, fixtures 2)Thermocouple based temperature controller. 3)Pump on / off timer 4)Models of jigs / fixtures 5)Layout design of SSI units / factory / workshop of the institute Models of material handling route systems</p> <p>OR</p> <p>Modular Course on any one of the suggested or alike relevant topic be undertaken by a group of students (Min 10) :</p> <p>a) LPG/CNG conversion ofvehicles b) Advance features in CAD– CAMc) basics ofPLC programming d) die design e) JIT techniques f) Non traditional manufacturing methods g) jigs and fixture design h) 3D Modeling I) finite element method j) Mechatronics k) Advanced computer programming l) maintenance of home appliances m) value stream mapping n) piping technology</p>	04
Unit-6	<p>Student Activities – Students in a group of 3 to 4 shall perform ANY TWO of the following activities (Other similar activities may be considered) and write a report as a part of term work.</p> <p>Activities :-</p> <p>1.Collection of data regarding loan facilities or other facilities available through different organizations / banks to budding entrepreneurs 2.Survey and interviews of successful entrepreneurs in near by areas 3.Survey ofopportunities available in thrust areasidentified by Government or DIC. 4.Measuring Screwthread parameters onfloating carriage dialmicrometer and select the optimum diameter of wire. 5.Survey of data regarding different types ofpumps withspecifications from manufacturers catalogue, local markets, end users (any other engineering products may be considered for survey) 6.Survey of farm implements used by farmers</p>	04
	Total	48

Text/ Reference Books:		
Titles of the Book	Name of Authors	Name of the Publisher
Nanotechnology	Mark Ratner and Daniel Ratner	Pearson Educatuion, New Delhi
Computer Control of Manufacrting System	Yoram Korem	Mcgraw Hill Publication
Supply Chain Management	Sunil Chopra, Peter Meindl	Pearson Educatuion, New Delhi

METROLOGY & QUALITY CONTROL - TW
(MECH. ENGG. GROUP)

Subject Code 1625510	Term Work						Credits
	No. of Periods Per Week			Full Marks	:	25	01
	L	T	P/S	Internal	:	07	
	—	—	03	External	:	18	

CONTENTS : TERM WORK

List of Term Work:- (Perform any five) :-

1. Standard use of basic measuring instruments. Surface plate, v-block, spirit level, combination set, fillergauge, screw pitch gauge, radius gauge, vernier caliper, micrometer and slip gauges to measuredimension of given jobs.
2. To find unknown angle of component using sine bar and slip gauges.
3. Study and use of optical flat for flatness testing.
4. Measurement of screw thread elements by using screw thread micrometer, screw pitch gauge.
5. Study and use of dial indicator as a mechanical comparator for run out measurement, roundness comparison.
6. Measurement of gear tooth elements by using gear tooth vernier caliper and span micrometer, verification of gear tooth profile using profile projector,.
7. Testing of machine / machine tool for flatness, parallelism, perpendicularity by autocollimator.
8. Draw the frequency histogram, frequency polygon and ogee for given samples (min 50 reading)
9. And find mean, mode, median.
10. To draw the normal distribution curve and find standard deviation, variance, range
11. To draw and interpret the control limit for variable measurement (X and R chart).