SEMESTER S6

ENTREPRENEURSHIP

Course Code	OEEVT614	CIE Marks	40
Teaching Hours/Week (L: T:P: R)	3:0:0:0	ESE Marks	60
Credits	3	Exam Hours	2 Hrs. 30 Min.
Prerequisites (if any)	None	Course Type	Theory

Course Objectives:

1. To understand the importance of entrepreneurship and apply it in an organization.

SYLLABUS

Module No.	Syllabus Description	Contact Hours
1	Entrepreneurship: definition, requirements to be an entrepreneur, entrepreneur and intrapreneur, entrepreneur and manager, growth of entrepreneurship in India, women entrepreneurship, rural and urban entrepreneurship. Entrepreneurial Motivation: motivating factors, motivation theories-Maslow's need hierarchy theory, McClelland's acquired need theory, government's policy actions towards entrepreneurial motivation, entrepreneurship development programmes.	9
2	Types of Enterprises and Ownership Structure: small scale, medium scale and large scale enterprises, role of small enterprises in economic development; proprietorship, partnership, limited companies and co-operatives: their formation, capital structure and source of finance. Institutional Support and Policies: institutional support towards the development of entrepreneurship in India, technical consultancy organizations, Government programs, policies, incentive and institutional networking for enterprise setting.	9
3	Projects: identification and selection of projects, project report, contents and formulation, elements of project formulation, project design and network analysis, concept of project evaluation, methods of project evaluation: internal	9

	rate of return method and net present value method.	
4	Management of Enterprises: objectives and functions of management, scientific management, general and strategic management; introduction to human resource management: planning, job analysis, training, recruitment and selection, marketing and organizational dimension of enterprises; enterprise financing, raising and managing capital, shares, debentures, bonds, cost of capital; break- even analysis, balance sheet analysis.	**9**

Course Assessment Method
(CIE: 40 marks, ESE: 60 marks)

Continuous Internal Evaluation Marks (CIE):

Attendance	Assignment/ Microproject	Internal Examination-1 (Written)	Internal Examination- 2 (Written)	Total
5	**15**	**10**	**10**	**40**

End Semester Examination Marks (ESE)

In Part A, all questions need to be answered and in Part B, each student can choose any one full question out of two questions

Part A	Part B	Total
• 2 Questions from each module. • Total of 8 Questions, each carrying 3 marks **(8x3 =24marks)**	• Each question carries 9 marks. • Two questions will be given from each module, out of which 1 question should be answered. • Each question can have a maximum of 3 sub divisions. **(4x9 = 36 marks)**	**60**

Course Outcomes (COs)

At the end of the course students should be able to:

Course Outcome		Bloom's Knowledge Level (KL)
CO1	Describe the fundamental concepts of entrepreneurship	K1, K2, K3
CO2	Understand entrepreneurial motivation and motivation theories	K1, K2, K3
CO3	Analyze types of enterprises and ownership structure	K1, K2, K3
CO4	Apply project evaluation methods	K1, K2, K3, K4, K5
CO5	Evaluate enterprise financial strength	K1, K2, K3, K4, K5

Note*: K1- Remember, K2- Understand, K3- Apply, K4- Analyse, K5- Evaluate, K6- Create*

CO-PO Mapping Table (Mapping of Course Outcomes to Program Outcomes)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1										1	1	
CO2								2		1		
CO3										1		
CO4	2		1		2					1	3	
CO5	2		1		2					1	3	

Note: *1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), -: No Correlation*

Text Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	Entrepreneurial Development,	Khanka,SS	S Chand & Company Ltd. New Delhi	2007
2	Entrepreneurial Development	Ram Chandran	Tata McGraw Hill, New Delhi	2008

Reference Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	Entrepreneurial Development Programmes and Practices	Saini, J. S	Deep & Deep Publications	,2012
2	Entrepreneurship for Engineers	Badhai, B	Dhanpat Rai & co	2006
3	Project Management and Entrepreneurship	Desai,Vasant	HimalayanPublishing ,Mumbai	2017
4	Entrepreneurial Development	Gupta, Srinivasan	S Chand & Sons, New Delhi	2020

Video Links (NPTEL, SWAYAM…)	
Module No.	**Link ID**
1	https://nptel.ac.in/courses/110106141
2	https://nptel.ac.in/courses/110106141
3	https://nptel.ac.in/courses/110106141
4	https://nptel.ac.in/courses/110106141

SEMESTER 6

BIOMEDICAL ENGINEERING

Course Code	OEETVT615	CIE Marks	40
Teaching Hours/Week (L: T:P: R)	3:0:0:0	ESE Marks	60
Credits	3	Exam Hours	2 Hrs. 30 Min.
Prerequisites (if any)	None	Course Type	Theory

Course Objectives:

1. This course will introduce aspects of biomedical engineering as applied to biological systems described using engineering principles and the use of modern diagnostic and therapeutic equipment.

SYLLABUS

Module No.	Syllabus Description	Contact Hours
1	**Physiology and Bio- Electric Concepts** Cell and their structure, Transport of ions through the cell membrane, Resting and action potentials, Bio-electric potentials. Electrode theory – Electrode potential, Types of electrodes, Equivalent circuit. Instrumentation amplifier, Isolation amplifier, Chopper amplifier, Devices to protect against electrical hazards.	9
2	**Body Potential Measurement** ECG – Nature of ECG waveform, ECG lead configurations, ECG recorder. EEG – Evoked potentials, Brain waves, Analysis of EEG EMG – Recording setup ERG and EOG	9
3	**Prosthesis** Heart Lung machine – Model of the heart-lung machine. Kidney machine – Dialysis.	9

	Nerve stimulators – Diagnostic/ Therapeutic stimulator. Centralized & Bedside monitoring Microprocessor based ventilator	
4	**Medical Imaging** Computer Tomography – Basic principle, Image construction, Block diagram, Applications. Magnetic Resonance Imaging – Block diagram, Image reconstruction. Ultrasonic Imaging – Different modes. Positron Emission Tomography – Principle.	**9**

Course Assessment Method
(CIE: 40 marks, ESE: 60 marks)

Continuous Internal Evaluation Marks (CIE):

Attendance	Assignment/ Microproject	Internal Examination-1 (Written)	Internal Examination- 2 (Written)	Total
5	**15**	**10**	**10**	**40**

End Semester Examination Marks (ESE)

In Part A, all questions need to be answered and in Part B, each student can choose any one full question out of two questions

Part A	Part B	Total
● 2 Questions from each module. ● Total of 8 Questions, each carrying 3 marks **(8x3 =24marks)**	● Each question carries 9 marks. ● Two questions will be given from each module, out of which 1 question should be answered. ● Each question can have a maximum of 3 sub divisions. **(4x9 = 36 marks)**	**60**

Course Outcomes (COs)

At the end of the course students should be able to:

Course Outcome		Bloom's Knowledge Level (KL)
CO1	Learn the basics of bioelectric potentials	**K1**
CO2	Understand the operation of different biopotential recorders	**K2**
CO3	Learn the medical equipment for diagnosis and therapy	**K1**
CO4	Understand the general concepts of imaging systems	**K2**

Note*: K1- Remember, K2- Understand, K3- Apply, K4- Analyse, K5- Evaluate, K6- Create*

CO-PO Mapping Table (Mapping od Course Outcomes to Program Outcomes)

	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	**3**	**2**										**2**
CO2	**3**	**2**										**2**
CO3	**3**	**3**										**2**
CO4	**3**	**3**										**2**

Note: *1: Slight (Low), 2: Moderate (Medium), 3: Substantial (High), -: No Correlation*

Text Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	Handbook of Biomedical Instrumentation	R S Khandpur	TATA McGRAW HILL	
2	Biomedical Instrumentation and Measurements	Leslie Cromwell, Fred J Weibell, Erich A Pfeiffer	PHI	

Reference Books				
Sl. No	**Title of the Book**	**Name of the Author/s**	**Name of the Publisher**	**Edition and Year**
1	Medical Instrumentation Application and Design	John G Webster	WILEY	
2	Introduction to Biomedical Equipment Technology	Joseph J Carr, John M Brown	PEARSON	

Video Links (NPTEL, SWAYAM…)	
Module No.	**Link ID**
1	https://www.youtube.com/watch?v=OqNDFF1RsMU
2	https://www.youtube.com/watch?v=mK6sPBbChqc
3	https://onlinecourses.swayam2.ac.in/nou23_bt05/preview
4	https://onlinecourses.nptel.ac.in/noc22_bt56/preview