

#### Curriculum – 2017 Regulation – BMI

#### Semester: 3

#### Theory:

Course Code	Course Title	С	L	T/SLr	P/R	Ty / Lb/ ETL
BMA17006	Mathematics III for Electrical Engineers	4	3	1/0	0/0	Ту
BEI17001	Circuit Theory	4	3	1/0	0/0	Ту
BBI17001	Electric Field and Machines	4	3	1/0	0/0	Ту
BBI17002	Human Anatomy	3	3	0/0	0/0	Ту
BEC17I06	Analog and Digital IC's	3	3	0/0	0/0	Ту

#### **Practical:**

BBI17ET1	Advancement In Electronics *	3	1	0/2	1/1	ETL
BBI17L01	Human Anatomy Laboratory	1	0	0/0	3/0	Lb
BBI17L02	Electric Circuits Laboratory	1	0	0/0	3/0	Lb
BEC17IL4	Analog and Digital IC's Laboratory	1	0	0/0	3/0	Lb

#### **Credits Sub Total: 24**

## Semester: 4

#### **Theory:**

Course Code	Course Title	С	L	T/SLr	P/R	Ту /
						Lb/ ETL
BMA17011	Numerical Methods For Electrical Engineers	4	3	1/0	0/0	Ту
BEI17007	Transducer Engineering	4	3	1/0	0/0	Ту
BBI17003	Human Physiology	4	3	1/0	0/0	Ту
BBI17004	Medical Physics	3	3	0/0	0/0	Ту
BBT17I02	Bio-Chemistry	3	3	0/0	0/0	Ту

C : Credits L : Lecture T : Tutorial S.Lr : Supervised Learning P : Problem / Practical R : Research Ty/Lb/ETL : Theory/Lab/Embedded Theory and Lab

B.Tech. –Biomedical Instrumentatio

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Maduravoya

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Chennai-95

\* Internal evaluation (Departmental level Refer Annexure for evaluation methodology)

C. B. Palaminde

REGISTRAR Dr. M.G.R. EDUCATIONAL AND RESEARCH INSTITUTE (Deemed to be University) Periyar E.V.R. High Road, Maduravoyal, Chennai 600 095



#### **Practical:**

BSK17ET1	Soft Skill 1	2	1	0/1	1/0	ETL
BBI17ET2	Bio-Mechanics*	3	1	0/2	1/1	ETL
BBI17L03	Human physiology Laboratory	1	0	0/0	3/0	Lb
BEI17L03	Transducer Laboratory	1	0	0/0	3/0	Lb
BBT17IL2	Bio- Chemistry Laboratory	1	0	0/0	3/0	Lb
BBI17TSX	Technical Skill 1 (Evaluation)	1	0	0/0	2/0	Lb
				Credi	its Su	b Total:

#### Semester: 5 Theory:

**Course Title** С T/SLr P/R Course L Ty/ Code Lb/ ETL BBI17005 **Bio-Control Systems** 4 3 1/00/0 Ty BBI17006 **Bio-Medical Signal processing** 4 3 1/00/0 Ty 3 3 BBI17007 **Bio-Medical Instrumentation** 0/0 0/0 Ty **BBI17008 Bio-Materials and Artificial Organs** 3 3 0/0 0/0 Ту Microprocessor, Microcontroller and **BEE17I02** 3 3 0/0 0/0 Ty its Applications

#### Practical:

BBI17ET3	Measurement and Instrumentation*	3	1	0/2	1/1	ETL
BBI17L04	Electrical and Electronics Measurements Laboratory	1	0	0/0	3/0	Lb
BBI17L05	Bio- Signal Acquisition Laboratory	1	0	0/0	3/0	Lb
BEE17IL3	Microprocessor, Microcontroller and its Applications Laboratory	1	0	0/0	3/0	Lb
BBI17TSX	Technical Skill 2 (Evaluation)	1	0	0/0	3/0	Lb
BBI17L06	Inplant Training (Evaluation)	1	0	0/0	2/0	Lb

#### Credits Sub Total: 25

C: Credits L: Lecture T: Tutorial S.Lr : Supervised Learning P : Problem / Practical R : Research Ty/Lb/ETL: Theory/Lab/Embedded Theory and Lab

\* Internal evaluation (Departmental level Refer Annexure for evaluation methodology)



#### Semester: 6 Theory:

Course Code	Course Title	С	L	T/SLr	P/R	Ty / Lb/ ETL
BBI17009	Pathology and Microbiology	4	3	1/0	0/0	Ту
BBI17010	Medical Image Processing	3	3	0/0	0/0	Ту
BBI17EXX	Elective 1	3	3	0/0	0/0	Ту
BEC17I07	Communication System and IOT	3	3	0/0	0/0	Ту
BBI170EX	Open Elective (Interdisciplinary)	3	3	0/0	0/0	Ту

#### **Practical:**

BSK17ET2	Soft Skill 2	2	1	0/1	1/0	ETL
BBI17L07	Bio-Medical Signal and Image Processing Laboratory	1	0	0/0	3/0	Lb
BBI17L08	Bio-Medical Instrumentation Laboratory -	1	0	0/0	3/0	Lb
BBI17L09	Pathology and Microbiology Laboratory	1	0	0/0	3/0	Lb
BBI17L10	Mini Project (Evaluation)	1	0	0/0	0/2	Lb
BBI17TSX	Technical Skill 3 (Evaluation)	1	0	0/0	2/0	Lb

#### **Credits Sub Total: 23**

Semester: 7

#### Theory:

Course Code	Course Title	С	L	T/SLr	P/R	Ty / Lb/ ETL
BBI17011	Bio-Medical Equipments	4	3	1/0	0/0	Ту
BBI17012	Virtual Instrumentation for Medical Application	4	3	1/0	0/0	Ту
BBI17EXX	Elective 2	3	3	3	0/0	0
BBI17EXX	Elective 3	3	3	3	0/0	0
BMG17003	Total Quality Management	3	3	3	0/0	0

 $Credits\ L: Lecture\ T: Tutorial\ S.Lr: Supervised\ Learning\ P: Problem\ /\ Practical\ R: Research\ Ty/Lb/ETL: Theory/Lab/Embedded\ Theory\ and\ Lab$ 



#### **Practical:**

BBI17ESX	Elective (Special - Based on Current Technology) *	3	1	0/2	1/1	ETL
BBI17L11	Bio-Medical Instrumentation Laboratory - II	1	0	0/0	3/0	Lb
BBI17L12	Virtual Instrumentation Laboratory for Medical Application	1	0	0/0	3/0	Lb
BBI17L13	Project Phase – 1	2	0	0/0	0/2	Lb
BFL17001	Foreign Language (Evaluation)	2	1	1	0/0	

#### Credits Sub Total: 26

# Semester: 8

Theory:

<b>Course Code</b>	Course Title	С	L	T/SLr	P/R	Ty/
						Lb/ ETL
BBI17EXX	Elective 4	3	3	0/0	0/0	Ту
BBI17EXX	Elective 5	3	3	0/0	0/0	Ту
BMG17005	Entrepreneurship Development	3	3	0/0	0/0	Ту

#### Practical:

BBI17L14 Project (Phase – II)	10	0/0	0/0	10	Lb
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#### **Credits Sub Total: 19**

 $C: Credits\ L: Lecture\ T: Tutorial\ S.Lr: Supervised\ Learning\ P: Problem\ /\ Practical\ R: Research\ Ty/Lb/ETL: Theory/Lab/Embedded\ Theory\ and\ Lab$ 

\* Internal evaluation (Departmental level Refer Annexure for evaluation methodology)

4 Credit papers should compulsorily have either P/R component.

#### **Credit Summary**

Semester : 1	: 18
Semester : 2	: 23
Semester : 3	: 24
Semester: 4	: 27
Semester : 5	: 25
Semester : 6	: 23
Semester: 7	: 26
Semester : 8	: 19

Total Credits : 185



#### **Elective 1**

<b>Course Code</b>	Course Title	С	L	T/S	P/R	Ty / Lb/
				Lr		ETL
BBI17E01	Troubleshooting of Bio-Medical Equipments	3	3	0/0	0/0	Ту
BBI17E02	Rehabilitation Engineering	3	3	0/0	0/0	Ту
BBI17E03	Human Assist Devices	3	3	0/0	0/0	Ту

#### **Elective 2**

Course Code	Course Title	С	L	T/S	P/R	Ty / Lb/
				Lr		ETL
BBI17E04	Laser and Ultrasonic Application in Medicine	3	3	0/0	0/0	Ту
BBI17E05	Computer based Medical Instrumentation	3	3	0/0	0/0	Ту
BBI17E06	Biomedical MEMS and Nano Technology	3	3	0/0	0/0	Ту

#### **Elective 3**

<b>Course Code</b>	Course Title	С	L	T/S	P/R	Ty / Lb/
				Lr		ETL
BBI17E07	Radiological Equipments	3	3	0/0	0/0	Ту
BBI17E08	Biological Effects of Radiation	3	3	0/0	0/0	Ту
BBI17E09	Computer in Medicine	3	3	0/0	0/0	Ту

## **Elective 4**

<b>Course Code</b>	Course Title	С	L	T/S	P/R	Ty / Lb/
				Lr		ETL
BBI17E10	Medical Informatics	3	3	0/0	0/0	Ту
BBI17E11	Fibre Optic and Laser Instruments	3	3	0/0	0/0	Ту
BBI17E12	Diagnostic and Therapeutic Equipments I	3	3	0/0	0/0	Ту

## Elective 5

<b>Course Code</b>	Course Title	С	L	T/S	P/R	Ty / Lb/
				Lr		ETL
BBI17E13	Recent Advances Applied to Hospital Engineering	3	3	0/0	0/0	Ту
BBI17E14	Diagnostic and Therapeutic Equipments II	3	3	0/0	0/0	Ту
BBI17E15	System Theory Applied to Biomedical Engineering	3	3	0/0	0/0	Ту



Subject	Cod	e: Su	bject N	ame :	SOFT S	gh Road, Mad SKILL	S - I C	AREEI	R and	Τ/	L	Τ/	<b>P</b> /	C
BSK17I	ET1	C	ONFID	ENCE	BUILI	DING				L/	5	S.Lr	R	
										ETL				
		Pr	erequisi	ite: Nor	ne					Ту	1	0/1	1/0	2
L : Lect	ure T	: Tuto	rial S	Lr : Sup	pervised	d Learn	ing P:	Project	R : Re	search C	C: Cred	lits		
T/L/ETI	L : Tł	neory/L	.ab/Eml	bedded	Theory	and La	ıb							
OBJEC	TIV	E :		•	1 /				1 1			.1		11 .
	TO C	reate a	warene	ss in st Iavalon	udents,	variou ivo fran	s top c	ompanı ind	es help	ing them	1 impro	ove the	eir ski	III set
$\succ$	To he	elp stud	lents be	aware	of vario	ous tech	niques	of cand	lidate re	cruitme	nt and I	help th	em pr	epare
	CV's	and re	sume.				1					Ĩ	ſ	1
$\succ$	To he	elp stuc	lent ho	w to fac	e vario	us type	s of inte	erview,	prepari	ng for H	R, tech	nnical i	ntervi	ews.
$\triangleright$	To h	elp stu	udents improve their verbal reading, narration and presentation skills by performs											
	vario	us moc	ck sessions.											
COURS	SE O	UTCO	OMES (COs) : ( 3- 5)											
Students	will t	be able t												
CO1	Bea	aware o	of vario	us top c	ompan	ies lead	ling to i	mprove	ement ir	skills a	mongs ·	t them	•	11
CO2	Be a	aware (	of vario nare CV	us cand	idate re	ecruitme	ent tech	iniques	like gro	up discu	ssion,	intervi	ews a	nd be
CO3	Prei	bare for	r differe	ent type	1000000000000000000000000000000000000	erviews	and be	e prepar	ed for F	IR and to	echnic	al inter	views	
CO4	Imp	rove th	neir verl	bal, wri	tten and	d other	skills b	y perfor	ming m	nock sess	sions.			
Mappin	ng of	Course	e Outco	omes wi	ith Pro	gram (	Outcom	nes (PO	s)					
COs/PO	)s	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1	0 PC	011	PO12
CO1		L	L	L	L	L	М	М	Н	М	Н	N	Л	Н
CO2		L	L	L	L	L	М	М	Н	М	Н	N	Λ	Н
CO3		L	L	L	L	L	Μ	М	Н	М	Η	N	Л	Н
CO4		L	L	L	L	L	Μ	М	Н	М	Η	N	Л	Н
COs / P	SOs	PS	01	PS	O2	PS	03	PS	SO4	PSO5				
CO1		]	L	I		H	H		L	L				
CO2		]	L	Ι		H	H		L	L				
CO3		]	Ĺ	Ι		I	H		L	L				
CO4		]	L	I		H	H		L	L				
H/M/L i	indica	ates Str	ength o	f Corre	lation	H- Hig	gh, M- 1	Mediun	n, L-Lov	W				
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Catego	ory		ien	Ň		ves		sct	chr					
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Approva	al													



#### Periyar E.V.R. High Road, Maduravoyal, Chennai-95. Tamilnadu. India. SOFT SKILLS – I CAREER AND CONFIDENCE BUILDING

EDUCATIO

#### UNIT I

Creation of awareness of top companies / improving skill set matrix / Development of positive frame of mind / Creation of self-awareness

DEEMED TO BE UNIVERSITY (An ISO 9001 : 2015 Certified Institution) University with Graded Autonomy Status

#### UNIT II

Group discussions / Do's and don'ts – handling group discussions / what evaluators look for interpersonal relationships / Preparation of Curriculum Vitae / Resume

#### UNIT III

Interview – awareness of facing questions – Do's and don'ts of personal interview / group interview, enabling students to prepare for different proce3dures such as HR interviews and Technical Interviews / self-introductions

#### UNIT IV

Verbal aptitude, Reading comprehension / narration / presentation / Mock Interviews

#### UNIT V

Practical session on Group Discussion and written tests on vocabulary and reading comprehension

**Total Number of Hours: 30 Hrs** 

## 6 Hrs

6 Hrs

## 6 Hrs

# 6 Hrs

6 Hrs



Subject Code	: Su	bject Na	ame:	rechn	ICAL S	SKILL	I		T/L/	L	T/ SIr	<b>P/ R</b>	C
DEII/ISA									EIL		<b>5.</b> Lr		
									0	0	0	1	1
L : Lecture T :	: Tutoria	1 SLr :	Supervis	ed Learr	ing P:	Project	R : Res	earch C	: Credits				<u> </u>
T/L/ETL : The	eory/Lab	/Embed	ded Theor	y and L	ab	5							
OBJECTIVE	: The	objective	e is to dev	elop the	technic	al skill o	of the stu	idents.					
COURSE OU	JTCOM	ES (CO	s):(3-5	)									
CO1	Develo	p the tec	chnical sk	ills requ	ired in tl	he field	of study						
CO2	Bridge	the gap	between t	he skill	requiren	nents of	the emp	oloyer or	industry a	and the c	ompeten	cy of th	e
<u>CO3</u>	Enhand	.S. e the en	nlovabili	ty of the	student	-c							
	Emian		npi0ya011	ty of the	studeill	.0.							
Mapping of C	Course C	Outcomes with Program Outcomes (POs)											
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO	12
CO1	Н	Н	Н	Н	Н	Н	М	М	Н	М	Н	1	М
CO2	Н	Н	M	Н	Н	Н	М	М	Н	Н	Н	]	H
CO3	Н	Н	Н	Н	Н	Н	М	М	Н	Н	Н	]	H
COs / PSOs	PS	01	PSO	02	PS	03	PS	504	PSO5				
CO1	]	H	H	[	]	H		Н	Н				
CO2	]	H	H	[	]	H		H	H				
CO3		H				H	T T	H	H				
H/M/L indicat	es Stren	gth of C	orrelation	H- H1	gh, M- I	Medium	, L-Low	7					
Category	c Sciences	neering Sciences	anities and Social nces	ram Core	ram Electives	1 Electives	tical / Project	nships / Technical Skil	Skills				
Approval	Basi	Engi	Hurr Scie	Prog	Prog	Oper	Prac	<ul><li>▲ Inter</li></ul>	Soft				
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Subject Code BEI17TSX	: Su	bject Na	ame: 7	TECHN	ICAL S	KILL	II		T / L/ ETL	L	T / S.Lr	<b>P/ R</b>	C	
									0	0	0	1	1	
L : Lecture T :	Tutoria	l SLr :	Supervise	ed Learr	ing P:	Project	R : Res	earch C	Credits				<u> </u>	
T/L/ETL : The	eory/Lab	/Embed	ded Theor	y and L	ab									
OBJECTIVE	: The o	objective	e is to dev	elop the	technica	al skill c	of the stu	idents.						
COURSE OU	тсом	ES (CO	s):(3-5)	)										
CO1	Develo	p the tec	chnical ski	lls requi	ired in th	ne field	of study							
CO2	Bridge	the gap	between t	he skill	requiren	nents of	the emp	loyer or	industry a	and the	competen	cy of th	e	
	student	s.												
CO3	Enhanc	e the en	nployabili	ty of the	student	s.								
Mapping of C	Course C	Outcome	tcomes with Program Outcomes (POs)											
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO	12	
CO1	Н	Н	Н	Н	Н	Н	М	М	Н	М	Н	]	М	
CO2	Н	Н	М	Н	Н	Н	Μ	Μ	Н	Н	Н	]	H	
CO3	Н	Н	Н	Н	Н	Н	Μ	M	Н	Н	Н	]	H	
COs / PSOs	PS	01	PSC	)2	PS	03	PS	504	PSO5					
CO1	I	Н	Н		I	Η	]	H	Н					
CO2	I	Н	Н		I	H	]	H	Н					
CO3	I	Н	Н		I	Η	]	H	Н					
H/M/L indicat	es Streng	gth of Co	orrelation	H- Hi	gh, M- I	Medium	, L-Low							
Category	Basic Sciences       Engineering Sciences       Engineering Sciences       Engineering Sciences       Sciences       Program Core       Program Electives       Practical / Project								Soft Skills					
Approval		1	1		<u> </u>	<u> </u>	1	1		1				



Subject Code:	: Sı	ibject Na	ame : 1	NPLAN	IT TRA	INING			T / L/	L	Τ/	<b>P/ R</b>	C
BBI17L06									ETL		S.Lr		
									L	0	0/0	2/0	1
L : Lecture T :	Tutori	al SLr:	Supervise	ed Learr	ing P:	Project	R : Res	earch C	: Credits				
T/L/ETL : The	ory/La	b/Embed	ded Theor	y and L	ab								
OBJECTIVE	: The	main obje	ective of t	he Inpla	nt traini	ng is to j	provide	a short-	term work	experier	nce in an	Industr	у/
Company/ Org	anizati	ation											
COURSE OU	TCOM	OMES (COs) : (3-5)											
CO1	- -	Го get an	insight of	an indu	stry / or	ganizati	on/comp	oany per	taining to	the doma	ain of stu	dy.	
CO2	r	Го acquir	e skills an	d know	edge for	r a smoo	th transi	ition int	o the caree	er.			
CO3	- -	Го gain fi	eld experi	ence an	d get lin	ked with	n the pro	fession	al network	•			
Mapping of C	ourse	Outcome	s with Pr	ogram (	Outcom	es (POs	)						
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO	12
CO1	Μ	L	L	L	L	Н	Н	Н	Н	Н	Н		H
CO2	Н	М	Н	Н	М	Н	Н	Н	Н	Н	Н	]	М
CO3	Н	Н	Н	Н	М	Н	Н	Н	Н	Н	Н	]	М
COs / PSOs	P	SO1	PSC	)2	PS	03	PS	SO4	PSO5				
CO1													
CO2													
H/M/L indicate	es Strei	ngth of C	orrelation	H- Hi	gh, M- I	Medium	, L-Low			•	•	•	
		Ĭ						ill					
								Sk					
		s	ial					cal					
Category		JCe	200		s			ini					
8,		ciei	с, т		ive		ect	ecł					
	ces	Š	an	ore	ecti	ves	roj	/T					
	len	ing	les	ũ	E	scti	/ P	sd	ls				
	Sci	eer	niti	m	m	Ele	cal	shi	kil				
	ic	in	enc	gr8	gra	en	cti	шa	t S				
	Bas	E E E	Hun Sci	Pro	Pro	odC	Pra	Inte	Sof				
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Approval													

<b>Dr. M.G.R.</b> EDUCATIONAL AND RESEARCH INSTITUTE DEEMED TO BE UNIVERSITY (An 150 9001: 2015 Certified Institution)	A MITH OP
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Subject Code	Subject Name : SOFT SKILLS – II						inadu. India.	T / L/ ETL	L	T / S.Lr	P/ R	С	
	Pre	erequisite	e: Soft Ski	ills - I									1
L : Lecture T :	Tutoria	1 SLr :	Supervise	ed Learn	ning P:	Project	R : Res	earch C	: Credits			1	<u> </u>
T/L/ETL : The	ory/Lab	/Embed	ded Theor	y and L	ab								
OBJECTIVE	: The	main ob	jective is	to streng	gthen the	e logical	and arit	thmetic	reasoning	skills of	the stude	nts.	
COURSE OU	тсом	ES (CO	s) : ( 3- 5)	)									
CO1	Recogn	nize and	apply arit	hmetic k	knowled	ge in a v	variety o	f contex	tts.				
CO2	Ability	to ident	ify and cr	itically e	evaluate	philoso	phical a	rgument	s and defe	nd them	from crit	icism.	
CO3	Define	data and	l interpret	informa	ation from	m graph	s.						
Mapping of C	ourse C	Outcomes with Program Outcomes (POs)											
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	POI	12
CO1	Н	Н	Н	Н	Н	Н	L	L	Н	М	Н	]	Η
CO2	М	М	М	Н	L	Н	L	Н	Н	Н	Н	]	L
CO3	Н	Н	Н	Н	Н	Η	М	М	Н	Н	Н	]	Η
COs / PSOs	PS	01	PSC	02	PS	03	PS	504	PSO5				
CO1													
CO2													
H/M/L indicate	es Stren	gth of Co	orrelation	H- Hi	gh, M- N	Medium	, L-Low			1	1		
Category	Basic Sciences         Engineering Sciences         Humanities and Social         Sciences         Program Core         Program Electives         Open Electives         Practical / Project         Internships / Technical Skill					Internships / Technical Skill	Soft Skills						
Approval		I			<u> </u>		<u> </u>	I <u> </u>		I		<b>I</b>	



#### UNIT I LOGICAL REASONING I

Logical Statements - Arguments - Assumptions - Courses of Action

#### UNIT II LOGICAL REASONING II

Logical conclusions – Deriving conclusions from passages – Theme detection

#### UNIT III ARITHMETICAL REASONING I

Number system – H.C.F and L.C.M – Problem on ages – Percentage – Profit and Loss – Ratio and Proportion – Partnership

#### UNIT IV ARITHMETICAL REASONING II

Time and Work – Time and Distance – Clocks – Permutations and Combinations – Heights and Distances – Odd man out and Series

#### UNIT V DATA INTERPRETATION

Tabulation – Bar graphs – Pie graphs – Line graphs

#### **Reference Books:**

- 1. R.S.Agarwal, A modern approach to Logical Reasoning, S.Chand and Co., (2017).
- 2. R.S.Agarwal, A modern approach to Verbal and Non verbal Reasoning, S.Chand and Co., (2017).
- 3. R.S.Agarwal, Quantitative Aptitude for Competitive Examinations, S.Chand and Co., (2017).
- 4. A.K.Gupta, Logical and Analytical Reasoning, Ramesh Publishing House, (2014).
- 5. B.S.Sijwali, Indu sijwali, A new approach to Reasoning (Verbal and Non verbal), Arihant Publishers, (2014).



Subject Code	: Su	bject Na	ame: I	MINI PI	ROJEC	Т			T / L/	L	Τ/	<b>P/ R</b>	С
BBI17L10		-							ETL		S.Lr		
	Pre	requisit	e: NIL						L	1	0/0	2/0	1
L : Lecture T :	Tutoria	l SLr :	Supervise	ed Learn	ing P:	Project	R : Res	earch C	C: Credits				
T/L/ETL : The	eory/Lab	/Embed	ded Theor	y and L	ab								
OBJECTIVE	: To ac	quire ha	nds-on ex	perience	e in conv	verting a	novel ic	lea / tec	hnique into	o a work	ing mode	l / proto	type
involving mult	i-discipl	linary sk	ills and /	or know	ledge an	d worki	ng in at	team.					
COURSE OU	TCOM	OMES (COs) : ( 3- 5)											
CO1	To con	conceptualize a novel idea / technique into a product											
CO2	To dev	develop a multi-disciplinary thinking and enable teamwork											
CO3	Ideate a	and deve	elop a prot	otype									
Mapping of C	Course O	Outcomes with Program Outcomes (POs)											
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO1	2
CO1	Н	Н	Н	М	M	Н	Н	Н	М	L	Н	N	Л
CO2	Н	Н	Н	М	Н	Μ	Μ	Μ	Н	Н	Н	I	Н
CO3	Н	Н	Н	Н	Н	Н	Μ	H	Н	M	Н	I	Н
COs / PSOs	PSO1		PSO2		PSO3		PSO4		PSO5				
CO1													
CO2													
H/M/L indicat	es Streng	gth of C	orrelation	H- Hi	<u>gh, M- I</u>	Medium	, L-Low						
Category	Basic Sciences	Engineering Sciences	Humanities and Social Sciences	Program Core	Program Electives	Open Electives	Practical / Project	Internships / Technical Skill	Soft Skills				
Approval													



Subject Code BEI17TSX	: Su	bject Na	ame: [	<b>FECHN</b>	ICAL S	KILL	III		T / L/ ETL	L	T/ SLr	<b>P/ R</b>	С	
									L	0	0/0	2/0	1	
L : Lecture T :	Tutoria	l SLr:	Supervis	ed Learr	ing P:	Project	R : Res	earch C	: Credits	1 1				
T/L/ETL : The	eory/Lab	/Embed	ded Theor	y and L	ab									
OBJECTIVE	: The	objective	e is to dev	elop the	technica	al skill c	of the stu	idents.						
COURSE OU	тсом	ES (CO	s):(3-5)	)										
CO1	Develo	op the tec	chnical sk	ills requi	ired in th	ne field	of study							
CO2	Bridge	the gap	between t	he skill	requiren	nents of	the emp	oloyer of	· industry a	and the c	ompeten	cy of th	e	
	studen	udents.												
CO3	Enhan	ce the en	nployabili	ty of the	student	s.								
Mapping of C	Course (	urse Outcomes with Program Outcomes (POs)												
COs/POs	PO1	1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 PO12												
CO1	Н	Н	Н	Н	Н	Н	М	М	Н	М	Н	Ν	M	
CO2	Н	Н	М	Н	Н	Н	Μ	М	Н	Н	Н	I	Н	
CO3	Н	Н	Н	Н	Н	Η	Μ	Μ	Н	Н	Н	I	H	
COs / PSOs	PS	501	PSO	02	PS	03	PS	504	PSO5					
CO1		H	H	[	H H		Н							
CO2		H	H	[	Н		Н		Н					
CO3		H	H	[	H	H		H	Н					
H/M/L indicat	es Stren	gth of C	orrelation	H- Hi	gh, M- I	Medium	, L-Low							
Category	Basic Sciences	Engineering Sciences	Humanities and Social Sciences	Program Core	Program Electives	Open Electives	Practical / Project	<ul> <li>Internships / Technical Ski</li> </ul>	Soft Skills					
Approval		I	1	<u> </u>	<u> </u>	<u> </u>	I	<u>ı                                    </u>		I	1			



Subject	Code:	Su	Subject Name : PROJECT PHASE - 1					nadu. India.	T / L/	L	Τ/	<b>P/ R</b>	С	
										ETL		S.Lr		
		Pre	requisite	e: NIL						L	0	0/0	0/2	2
L : Lect	ure T :	Tutorial	SLr :	Supervise	ed Learn	ing P:	Project	R : Res	earch C	: Credits				
T/L/ET	L : The	ory/Lab	/Embedd	ded Theor	y and La	ab								
OBJEC	TIVE:	The of	ojective	of the Ma	ain Proje	ect is to	culmin	ate the	academ	ic study a	nd prov	ide an op	portuni	ty to
explore	a probl	lem or i	ssue, ad	dress thro	ugh foci	used and	applied	d researc	ch unde	r the direc	tion of	a faculty i	mentor.	The
project of	demons	strates th	ne studer	nt's ability	to synth	nesize ai	nd apply	the kno	wledge	and skills	acquire	d to real-	world is	sues
and pro	id problems. This project affirms the students to think critically and creatively, find an optimal solution, make ethical perisons and to present effectively.													
decision	lecisions and to present effectively.													
COURS	COURSE OUTCOMES (COs) : (3-5) CO1 Apply the knowledge and skills acquired in the course of study addressing a specific problem or issue													
CO1	Apply	the know	owledge	and skills	acquire	ed in the	course	of study	address	sing a spec	ific pro	olem or is	sue.	
CO2	To en reach	courage able solu	student utions	s to think	criticall	y and cr	eatively	about so	ocietal i	ssues and	develop	user frier	dly and	l
CO3	To re	fine rese	earch ski	lls and de	monstra	te their	proficier	ncy in co	ommuni	cation skil	ls.			
CO4	To tal	ke on th	e challer	nges of tea	amwork,	prepare	a prese	ntation a	and den	nonstrate th	ne innat	e talents.		
Mappir	Mapping of Course Outcomes with Program Outcomes (POs)													
COs/PC	Os/POs PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8							PO9	PO10	PO11	POI	2		
CO1 H H			Н	Н	Η	М	Н	Н	L	М	Μ	Н	I	Н
CO2	O2 H H			Н	Н	Н	Н	Н	Μ	М	Μ	Н	I	H
CO3		Н	Н	Н	Η	Н	Н	Н	Μ	М	Η	Н	Ν	N
CO4		Η	М	Н	Н	Н	Н	Μ	Н	Н	Н	Н	I	Н
COs / P	SOs	PS	01	PSC	02	PS	03	PSO4		PSO5				
CO1		H	ł	Н		Н Н			H	Н				
CO2		H	ł	Н		H	ł	]	H	Н				
CO3		H	H	Н		H	I	] ]	H	Н				
CO4		ŀ	ł	Н		ŀ	ł	]	H	Н				
H/M/L i	indicate	es Streng	gth of Co	orrelation	H- Hi	gh, M- 1	Medium	, L-Low			1			
Category		Basic Sciences	Engineering Sciences	Humanities and Social Sciences	Program Core	Program Electives	Open Electives	Practical / Project	Internships / Technical Skil	Soft Skills				
Approv	al							$\checkmark$						



Subject Code:	Su	bject Na	ame : I	FOREI	GN LAN	IGUAG	E		T / L/	L	Τ/	<b>P/ R</b>	С
BFL17001		<u> </u>							ETL		S.Lr	0.10	
	Pre	requisite	e: NIL							1	1	0/0	1
L : Lecture T :	Tutoria	l SLr :	Supervise	ed Learr	ning P:	Project	R : Res	earch C:	Credits				
T/L/ETL : The	ory/Lab	/Embed	ded Theor	y and L	ab								
OBJECTIVE	: To r	ecognize	e the cultu	ral value	es, pract	ices, and	d heritag	ge of the	foreign co	ountry, c	ommunic	cate	
effectively in a	foreign	languag	ge and inte	eract in a	a cultura	lly appr	opriate 1	manner v	with native	e speake	rs of that	languag	ge.
COURSE OU	TCOM	ES (CO	s) : (3-5)	)									
CO1	Achie	ve funct	ional prof	iciency	in listen	ing, spea	aking, re	eading, a	nd writing	<u>.</u>			
CO2	Devel	op an in	sight into	the natu	re of lar	iguage it	tself, the	e process	s of langua	ige and o	culture ac	quisitio	n.
CO3	Decod	le, analy	ze, and in	terpret a	uthentic	texts of	fdifferen	nt genres	s.				
Mapping of C	ourse C	Outcome	es with Pr	ogram (	Outcom	es (POs	;)						
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	POI	12
CO1	L	L	L	L	L	Η	L	Н	М	Н	Н	]	L
CO2	Μ	L	L	L	L	Η	L	Н	Н	Н	Н	]	L
CO3	L	L	М	Μ	L	Н	M	Н	М	Н	Н	]	L
COs / PSOs	PS	01	PSC	02	PS	O3	PS	SO4	PSO5				
CO1	]		L		]			L	L				
CO2	]	L L L L		L	L								
CO3	]	L	L		]			L	L				
H/M/L indicate	es Streng	gth of C	orrelation	H- Hi	gh, M- 1	Medium	, L-Low						
								cill					
		es	cial					ical SI					
Category		enc	Sc		'es		ct	chn					
	ses	Sci	and	e	ctiv	/es	oje	Te					
	enc	ng	es a	Col	Ele	ctiv	/Pr	/ sc	S				
	Sci	eeri	niti ces	um	m	Ele	cal	shij	kill				
	sic	gin	ima	gr:	)gra	en	acti	ern	ft S				
	$\mathbf{Ba}$	En	Hu Sc	$\Pr$	Pr	OF	Pri	Int	So				
			$\checkmark$										
Approval													
r r													

P	Dr. M.G.R. EDUCATIONAL AND RESEARCH INSTITUTE DEEMED TO BE UNIVERSITY	A NAAC
	(An ISO 9001 : 2015 Certified Institution)	
	University with Graded Autonomy Status	
	Perivar F.V.R. High Road, Maduravoval, Chennai-95, Tamilnadu, India.	

Subject Code	:	Su DF	bje EVE	ct Nan ELOPN	ne : MENT	EN	NTREF	PRENU	ERSHI	( <b>P</b>			L	Т	Р	С
		D			<b>D</b> · <i>W</i>								2	0	0	
BMG17005		P C	rere onc	quisite epts	: Basic Ki	now	ledge a	s Mana	gement				3	0	0	3
L : Lecture 7	C: Tuto	orial	Р	: Proj	ect C: Cro	edits										
OBJECTIV	E: The	e stu	den	t will l	earn:											
> The course aims to acquaint the students with challenges of starting new ventures and enable then to																
investigate, understand and internalize the process of setting up a business																
COURSE OUTCOMES (COs) :																
CO1 Understand the basics of entrepreneurial development																
CO2	Expla	in th	e requisites of starting a small scale industry													
CO3	Propo	se a	pla	n for n	ew ventur	e .										
CO4	Comp	prehend role of government in entrepreneurship														
Mapping of	Cours	se O	utco	omes (	COs) wit	h Pr	ogram	Outco	mes (PO	Js) and	1 Pro	ogra	m Spe	cific Ou	tcomes	
(PSOs)						1		DO								
COs/POs	PO1		PC	)2	PO3	PC	04	PO	PO6	PO7	PC	08	PO9	PO10	PO11	PO12
							5									
CO1	М	M M		М	Н				М	L	Н	[	L	Н	Н	Н
CO2		101		Н				L			Μ	1		Μ	Н	М
CO3	Н			Н	Н				М		Μ	1	М	Н	М	М
CO4			]	М			М	L		Н				М	L	М
H/M/L indica	tes Stre	engti	h of	Corre	lation H	- Hi	gh, M-	Mediur	n, L-Lo	W						
											kill					
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				es	cia						ica		ce			
Category				enc	So		es		ы		hn		len			
		S		Scie	pu		tiv	S	)jeć		Tec		Sci			
		nce		50	s ai	Ore	lec	tive	Pro				snt			
		cie		erin	itie s	n C	п П	lec	ul /		11pg	ills	ŝme			
		c S		nee	nce	ran	ran	лE	tice		hsł	SK	age			
		asi		ngi	um ciel	gOI	gOi	per	raci		nter	oft	lan			
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													v			
Approval																

#### ENTREPRENUERSHIP DEVELOPMENT

#### UNIT I INTRODUCTION

Nature and Development of Entrepreneurship; Entrepreneurial Decision Process; Role of entrepreneurship in economic development; Entrepreneurial process; managerial vs. entrepreneurial approach and emergence of entrepreneurship - Entrepreneurial background; Skills and characteristics of successful entrepreneurs; Motivation; Role Models and Support Systems

#### UNIT II BUSINESS IDEA

Generating business idea – sources of new ideas, methods of generating ideas, creative problem solving, opportunity recognition; Environmental scanning, competitor and industry analysis; Feasibility study – market feasibility, technical/operational feasibility, financial feasibility; Drawing a business plan; Using and Implementing the Business plan.

#### UNIT III MARKETING PLAN

Marketing plan – Marketing research for the new venture; Steps in preparing marketing plan; Contingency planning; Organizational plan – Forms of Business; Designing the organization; Building management team and Successful Organizational Culture; Role of Board of Directors; Board of Advisors; Financial plan – Operating and capital Budgets; Pro forma income statements; Pro forma cash flow; Pro forma balance sheet; Break even analysis; Pro forma Sources and Applications of Funds.

#### UNIT IV ASSESSMENT OF RISK

Assessment of Risk; Sources of finance – Debt or Equity Financing, Internal or External Funds; Personal Funds, Family and Friends; Commercial Banks – types of loans, Cash flow financing, Bank lending decisions; Venture Capital – Nature, overview, process, locating and approaching Venture Capitalists.

#### UNIT V ENTREPRENEURIAL STRATEGY FOR GENERATING AND EXPLOITING NEW ENTRIES; STRATEGIES FOR GROWING THE VENTURE 9 Hrs

Entrepreneurial strategy for generating and exploiting new entries; Strategies for growing the venture; Growth implications on Economy, Firm and Entrepreneur. Other routes for growth – Franchising, Joint Ventures, Acquisitions and Mergers: Going Public – Advantages and Disadvantages, Alternatives to Going Public.

#### **Total Number of Hours: 45 Hrs**

#### **Reference Books:**

- 1. Hisrich, Robert D., Michael Peters and Dean Shephered, Entrepreneurship, Tata McGraw Hill, New Delhi., 9th Edition, 2012, ISBN-13: 978-0078029196, ISBN-10: 0078029198
- 2. Vasant Desai, The Dynamics of Entrepreneurial Development and Management, Himalaya Publishing House., 11th Edition, 2005, ISBN: 8178660598
- Prasana Chandra, Projects planning, analysis selection, Implementation and reviews, Tata McGraw-Hill Publishing Company, 7th Edition, 2009, ISBN-10: 0070077932, ISBN-13, 9780070077935
- 4. Charantimath, Poornima, Entrepreneurship Development and Small Business Enterprises, Pearson Education, New Delhi, 5th Edition, 2009, ISBN: 978-81-7758-260-4
- 5. K.Ramachandran, Essentials of Business Communication, McGraw Hill Education (India) Private Limited, 9th Edition, 2013, ISBN-13: 978-1-111-82122-7, ISBN-10: 1-111-82122-4

#### 9 Hrs

9 Hrs

9 Hrs

#### 9 Hrs

#### Dr. M.G.R. EDUCATIONAL AND RESEARCH INSTITUTE DEEMED TO BE UNIVERSITY (An ISO 9001 : 2015 Certified Institution) University with Graded Autonomy Status Periyar EV.R. High Road, Maduravoyal, Chennai-95. Tamilnadu. India.



Subject	bject Code: Subject Name :				Periyar E.V.R. PROJEC	T PHA	duravoyal, Che SE - 2	nnai-95. Tamil	nadu. India.	T / L/	L	Τ/	P/R	C
~j			-J							ETL		S.Lr	_,	
		Pre	requisite	e: NIL						L	0	0/0	10	10
L : Lect	ure T : '	Tutorial	SLr :	Supervise	ed Learn	ing P:	Project	R : Rese	earch C:	Credits				
T/L/ETI	: The	ory/Lab	/Embedd	led Theor	y and La	ab	-							
OBJEC	TIVE:	The	objective	e of the M	lain Proj	ect is to	culmina	ate the a	cademic	study and	l provid	e an oppo	rtunity	to
explore	a probl	em or is	sue, add	lress throu	ıgh focu	sed and	applied	research	n under t	he direction	on of a f	aculty me	ntor. T	he
project o	lemons	trates th	e studer	nt's ability	to synth	nesize ar	nd apply	the kno	wledge a	and skills	acquire	d to real-v	vorld is	sues
and prob	olems.	This pro	ject affi	rms the st	udents to	o think o	critically	and cre	atively,	find an op	otimal so	olution, m	ake ethi	ical
decision	decisions and to present effectively. COURSE OUTCOMES (COs) : (3-5)													
COURS	CO1 Apply the knowledge and skills acquired in the course of study addressing a specific problem or issue													
COI	Apply	the knowledge and skins acquired in the course of study addressing a specific problem of issue.												
CO2	To en reacha	courage able solu	student utions	s to think	criticall	y and cr	eatively	about so	ocietal is	sues and	develop	user frier	dly and	
CO3	To ref	ïne rese	he research skills and demonstrate their proficiency in communication skills.											
CO4	To tak	te on the	e on the challenges of teamwork, prepare a presentation and demonstrate the innate talents.											
Mappin	g of Co	Course Outcomes with Program Outcomes (POs)												
COs/PO	s	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO1	2
CO1 H H		Н	Н	Η	Н	Н	Н	Н	Н	Н	Н	I	Н	
CO2	2 H H			Н	Η	Н	Н	Н	Н	Н	Н	Н	I	Η
CO3		Н	Н	Н	Η	Н	Н	Н	Н	Н	Н	Н	I	Η
CO4		Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	Н	I	Н
COs / PS	SOs	PS	01	PSC	)2	PS	03	PS	04	PSO5				
CO1		H	ł	Н		H H		H	Н					
CO2		H	I	Н		H	H	]	H	Н				
CO3		H	I	Н		H	H	]	H	Н				
CO4		H	I	Н		H	H	]	H	Н				
H/M/L i	ndicate	s Streng	gth of Co	orrelation	H- Hi	gh, M- 1	Medium	L-Low	1	1	1			
Category		Basic Sciences	Engineering Sciences	Humanities and Social Sciences	Program Core	Program Electives	Open Electives	Practical / Project	Internships / Technical Skill	Soft Skills				
								$\checkmark$						
Approva	al								•	•	•	ŀ		



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#### ISEMESTER

I SEIVESTER									
S.NO.	SUBJECT CODE	SUBJECT NAME	Ty/ Lb/ ETL	L	T/ SLr	P/R	С		
1	BEN18001	Technical English - I	Ту	1	0/0	2/0	2		
2	BMA18001	Mathematics - I	Ту	3	1/0	0/0	4		
3	BPH18001	Engineering Physics - I	Ту	2	0/1	0/0	3		
4	BCH18001	Engineering Chemistry - I	Ту	2	0/1	0/0	3		
5	BES18001	Basic Electrical and Electronics Engineering	Ту	2	0/1	0/0	3		
6	BES18002	Basic Mechanical and Civil Engineering	Ту	2	0/1	0/0	3		
		PRACTICALS*							
1	BES18L01	Basic Engineering Workshop	Lb	0	0/0	2/0	1		
2	BES18ET1	Orientation to Entrepreneurship and Project Lab	ETL	0	0/0	2/0	1		

### **Credits Sub Total: 20**

	II SEMESTER									
S.NO.	SUBJECT CODE	SUBJECT NAME	Ty/ Lb/ ETL	L	T/ SLr	P/R	С			
1	BMA18003	Mathematics – II	Ту	3	1/0	0/0	4			
2	BPH18002	Engineering Physics –II	Ту	2	0/1	0/0	3			
3	BCH18002	Engineering Chemistry – II	Ту	2	0/1	0/0	3			
4	BES18003	Environmental Science*	Ту	NO	NON CREDIT COURSE					
		PRACTICALS*								
1	BEN18ET1	Communication Lab	ETL	1	0/0	2/0	1			
2	BES18ET2	Basic Engineering Graphics	ETL	1	0/0	2/0	2			
3	BES18L02	Integrated Physical Science Lab	Lb	0	0/0	2/0	1			
4	BES18ET3	C Programming And Lab	ETL	1	0/0	2/0	2			

**Credits Sub Total: 16** 

**TOTAL CREDITS: 36** 

C: Credits L: Lecture T: Tutorial S.Lr: Supervised Learning P: Problem / Practical R: Research Ty/Lb/ETL: Theory /Lab/Embedded Theory and Lab \* Internal Evaluation

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	(An ISO 9001 : 2015 Certified Institution)	

#### University with Graded Autonomy Status Periyar E.V.R. High Road, Maduravoyal, Chennai-95. Tamilnadu. India.

III SEMESTER										
S.NO.	SUBJECT CODE	SUBJECT NAME	Ty/ Lb/ ETL	L	T/ SLr	P/R	С			
1	BBI18001	Human Anatomy and Physiology	Ту	3	1/0	0/0	4			
2	BEI18002	Circuit Theory	Ту	3	1/0	0/0	4			
3	BEE18003	Electromagnetic Field Theory	Ту	3	0/0	0/0	3			
4	BBI18002	Medical Physics	Ту	3	0/0	0/0	3			
5	BEC18I06	Analog and Digital ICs	Ту	3	0/0	0/0	3			
		PRACTICALS*								
1	BHS20ET5	Universal Human Values 2: Understanding Harmony	ETL	2	1/0	0/0	3			
2	BBI18L01	Human Anatomy and Physiology Lab	Lb	0	0/0	3/0	1			
3	BEI18L02	Electric Circuits Lab	Lb	0	0/0	3/0	1			
4	BEC18IL4	Analog and Digital ICs Lab	Lb	0	0/0	3/0	1			

#### **Credits Sub Total: 23**

	IV SEMESTER									
S.NO ·	SUBJECT CODE	SUBJECT NAME	Ty/ Lb/ ETL	L	T/ SLr	P/R	С			
1	BMA18011	Numerical Methods for Electrical Engineers	Ту	3	1/0	0/0	4			
2	BEI18005	Transducer Engineering	Ту	3	1/0	0/0	4			
3	BBI18003	Pathology and Microbiology	Ту	3	0/0	0/0	3			
4	BBT18I02	Bio-Chemistry	Ту	3	0/0	0/0	3			
5	BHS18NC1/ BHS18NC2	The Indian Constitution*/ The Indian Traditional Knowledge*	Ту	2	0/0	0/0	NC			
		PRACTICALS*								
1	BBI18ET1	Advancement in Electronics *	ETL	1	0/1	3/0	3			
2	BBI18L02	Pathology and Microbiology Lab	Lb	0	0/0	3/0	1			
3	BEI18L03	Transducer Lab	Lb	0	0/0	3/0	1			
4	BBT18IL2	Bio- Chemistry Lab	Lb	0	0/0	3/0	1			
5	BBI18TS1	Technical Skill 1	Lb	0	0/0	3/0	1			
6	BEN18SK1	Soft Skill I (Career and Confidence Building)	ETL	0	0/0	3/0	1			

#### **Credits Sub Total: 22**

C: Credits L: Lecture T: Tutorial S.Lr: Supervised Learning P: Problem / Practical R: Research Ty/Lb/ETL: Theory /Lab/Embedded Theory and Lab \* Internal Evaluation

EDUCATIONAL AND RESEARCH INSTITUTE	A NAAC
(An ISO 9001 : 2015 Certified Institution)	

#### University with Graded Autonomy Status Periyar E.V.R. High Road, Maduravoyal, Chennai-95. Tamilnadu. India

V SEMESTER								
S.NO.	SUBJECT CODE	SUBJECT NAME	Ty/ Lb/ ETL	L	T/ SLr	P/R	С	
1	BBI18004	Diagnostic and Therapeutic Equipments - I	TY	3	1/0	0/0	4	
2	BBI18005	Biomedical Instrumentation	Ту	3	0/0	0/0	3	
3	BXX18EXX	Elective I	TY	3	0/0	00	3	
4	BXX18OEX	Open Elective 1	TY	3	0/0	00	3	
PRACTICALS*								
1	BEI18ET1	Measurements and Instrumentation	ETL	1	0/1	3/0	3	
2	BBI18L03	Biomedical Instrumentation Lab	Lb	0	0/0	3/0	1	
3	BBI18L04	Diagnostic and Therapeutic Equipments - I Lab	Lb	0	0/0	3/0	1	
4	BEI18L05	Microprocessor, Microcontroller and its Applications Lab	Lb	0	0/0	3/0	1	
5	BBI18TS2	Technical Skill 2	Lb	0	0/0	3/0	1	

## **Credits Sub Total: 20**

	VI SEMESTER								
S.NO.	SUBJECT CODE	SUBJECT NAME	Ty/ Lb/ ETL	L	T/ SLr	P/R	С		
1	BBI18006	Diagnostic and Therapeutic Equipments II	Ту	3	1/0	0/0	4		
2	BBI18007	Troubleshooting of Biomedical Equipments	Ту	3	1/0	0/0	4		
3	BXX18EXX	Elective II	Ту	3	0/0	0/0	3		
4	BXX18OEX	Open Elective 2	Ту	3	0/0	0/0	3		
PRACTICALS*									
1	BBI18ET2	Bio-Mechanics	ETL	1	0/1	3/0	3		
2	BBI18L05	Troubleshooting of Biomedical Equipments Lab	Lb	0	0/0	3/0	1		
3	BBI18L06	Diagnostic and Therapeutic Equipments II Lab	Lb	0	0/0	3/0	1		
4	BEN18SK2	Soft Skill II (Qualitative and Quantitative Skills)	ETL	0	0/0	3/0	1		
5	BBI18L07	Mini Project/In plant Training/Industrial training	Lb	0	0	3/0	1		
6	BBI18TS3	Technical Skill 3	Lb	0	0/0	3/0	1		

**Credits Sub Total: 22** 

C: Credits L: Lecture T: Tutorial S. Lr : Supervised Learning P : Problem / Practical R : Research Ty/Lb/ETL: Theory/Lab/Embedded Theory and Lab \*Internal evaluation

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	(An ISO 9001 : 2015 Certified Institution)	
	University with Creded Autonomy Status	

#### Periyar E.V.R. High Road, Maduravoyal, Chennai-95. Tamilnadu. India.

VII SEMESTER									
S.NO.	SUBJECT CODE	SUBJECT NAME	Ty/ Lb/ ETL	L	T/ SLr	P/R	С		
1	BBI18008	Medical Image Processing	Ту	3	1/0	0/0	4		
2	BXX18EXX	Elective III	Ту	3	0/0	0/0	3		
3	BXX18EXX	Elective IV	Ту	3	0/0	0/0	3		
4	BMG18009	Total Quality Management for Biomedical Engineers	Ту	3	0/0	0/0	3		
		PRACTICALS*							
1	BBI18ET3	Virtual Instrumentation for Medical Application	ETL	1	0/1	3/0	3		
2	BBI18L08	Bio- Signal Acquisition Lab	Lb	0	0/0	3/0	1		
3	BBI18L09	Biomedical Image Processing Lab	Lb	0	0/0	3/0	1		
4	BBI18L10	Project Phase – I	Lb	0	0/0	3/3	2		
5	BHS18FLX	Foreign Language	Lb	0	0/0	3/0	1		
6	BXX18OLX	Open Lab	Lb	0	0/0	3/0	1		

**Credits Sub Total: 22** 

	VIII SEMESTER								
S.NO.	SUBJECT CODE	SUBJECT NAME	Ty/ Lb/ ETL	L	T/ SLr	P/R	С		
1	BBI18010	Medical Waste Management	Ту	3	1/0	0/0	4		
2	BBI18011	Bioprocess Technology	Ту	3	0/0	0/0	3		
PRACTICALS*									
1	BBI18L11	Project Phase – II	Lb	0	0/0	12/12	8		

**Credits Sub Total: 15** 

C: Credits L: Lecture T: Tutorial S.Lr: Supervised Learning P: Problem / Practical R: Research Ty/Lb/ETL: Theory /Lab/Embedded Theory and Lab \* Internal Evaluation



	University	y with Gradeu A	autonomy stat	us	
Periyar E.V.R.	High Road,	, Maduravoyal,	Chennai-95.	Tamilnadu. Ind	ia.

ELECTIVE -I									
S.NO.	SUBJECT CODE	SUBJECT NAME	Ty/ Lb/ ETL	L	T/ SLr	P/R	С		
1	BBI18E01	Bio Control System	Ту	3	0/0	0/0	3		
2	BBI18E02	Rehabilitation Engineering	Ту	3	0/0	0/0	3		
3	BBI18E03	Biomaterials and Implantable Devices	Ту	3	0/0	0/0	3		
4	BEI18E05	Embedded System	Ту	3	0/0	0/0	3		

	ELECTIVE -II									
S.NO.	SUBJECT CODE	SUBJECT NAME	Ty/ Lb/ ETL	L	T/ SLr	P/R	С			
1	BBI18E04	Laser and Ultrasonic Application in Medicine	Ту	3	0/0	0/0	3			
2	BBI18E05	Computer based Medical Instrumentation	Ту	3	0/0	0/0	3			
3	BBI18E06	Biomedical MEMS and Nano Technology	Ту	3	0/0	0/0	3			
4	BBI18E07	Computer Networks	Ту	3	0/0	0/0	3			

	ELECTIVE –III								
S.NO.	SUBJECT CODE	SUBJECT NAME	Ty/ Lb/ ETL	L	T/ SLr	P/R	С		
1	BBI18E08	Neuroscience for Biomedical Applications	Ту	3	0/0	0/0	3		
2	BBI18E09	Biological Effects of Radiation	Ту	3	0/0	0/0	3		
3	BBI18E10	Drug Delivery Systems	Ту	3	0/0	0/0	3		
4	BEI18E12	Artificial Intelligence and Expert Systems	Ту	3	0/0	0/0	3		

	ELECTIVE –IV								
S.NO.	SUBJECT CODE	SUBJECT NAME	Ty/ Lb/ ETL	L	T/ SLr	P/R	С		
1	BBI18E11	Medical Informatics	Ту	3	0/0	0/0	3		
2	BEI18E16	Principles of Robotics	Ту	3	0/0	0/0	3		
3	BBI18E12	Biomedical Signal processing	Ту	3	0/0	0/0	3		
4	BBI18E13	Bio-Materials and Artificial Organs	Ту	3	0/0	0/0	3		

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	University with Graded Autonomy Status	

#### Periyar E.V.R. High Road, Maduravoyal, Chennai-95. Tamilnadu. India. **ELECTIVE –V** Ty/ SUBJECT **T**/ S.NO. P/R **SUBJECT NAME** Lb/ L С CODE SLr ETL Recent Advances Applied to Hospital 3 1 BBI18E14 0/0 0/0 3 Ty Engineering Hospital Management 2 0/0 0/0 BBI18E15 Ty 3 3 System Theory Applied to Biomedical 3 BBI18E16 3 0/0 0/0 3 Тy Engineering 4 BBI18E17 Special Transducer and Instrumentation Ty 3 0/0 0/0 3

#### **CREDIT SUMMARY**

- Semester: 1 : 20 Credits
- Semester: 2 : 16 Credits
- Semester: 3 : 23 Credits
- Semester: 4 : 22 Credits
- Semester: 5 : 20 Credits
- Semester: 6 : 22 Credits
- Semester: 7 : 22 Credits
- Semester: 8 : 15 Credits
- TOTAL CREDITS 160



OPEN ELECTIVE								
S.NO.	SUBJECT CODE	SUBJECT NAME	Ty/ Lb/ ETL	L	T/ SLr	P/R	С	
1	BEE18OE1	Electrical Safety for Engineers	Ту	3	0/0	0/0	3	
2	BEE18OE2	Energy Conservation Techniques	Ту	3	0/0	0/0	3	
3	BEE18OE3	Electric Vehicle Technology	Ту	3	0/0	0/0	3	
4	BEE18OE4	Biomedical Instrumentation	Ту	3	0/0	0/0	3	
5	BEE18OE5	Introduction to Power Electronics	Ту	3	0/0	0/0	3	
6	BEE18OE6	Industrial Instrumentation	Ту	3	0/0	0/0	3	
7	BEE18OE7	Solar Energy Conversion System	Ту	3	0/0	0/0	3	
8	BEE18OE8	Wind Energy Conversion System	Ту	3	0/0	0/0	3	
9	BEE18OE9	Energy Storage Technology	Ту	3	0/0	0/0	3	
		OPEN LAB						
1	BEE18OL1	Transducer LAB	Lb	0	0/0	3/0	1	
2	BEE18OL2	PLC and SCADA LAB	Lb	0	0/0	3/0	1	
3	BEE18OL3	Electrical Maintenance LAB	Lb	0	0/0	3/0	1	
4	BEE18OL4	Power Electronics LAB	Lb	0	0/0	3/0	1	
5	BEE18OL5	Bio Medical Instrumentation LAB	Lb	0	0/0	3/0	1	



BES18ET1	le :	Subject ENTRE	Name : EPRENI	: ORIE EURSH	NTATI IP AND	3	Ty / Lb/ ETL	L	T/SL r	P/R	C				
		Prerequ	uisite : N	None					ETL	0	0/0	2/0	1		
L : Lecture ' T/L/ETL : T	Г : Tutori heory / L	ial SLr : Lab / Emb	Supervi bedded 7	sed Lean Theory a	rning P : nd Lab	Project	R : Rese	arch	C: Credi	ts		1			
OBJECTIV • Und • Ider • Und • Ider • Use COURSE C	<b>TES :</b> erstand h tify indiv erstand c tify com brainston	now entre vidual po lifference ponents & rming in a <b>MES (Co</b>	epreneur tential & e betwee & create a group s) : (3 –	ship Edu zS have in ideas a action p to gener 5)	acation the career du & opport olan. rate ideas	ransforms reams tunities 3.	s individ	uals ir	nto succ	essful	leaders.				
CO1	Develop	p a Busin	ess plan	& impr	ove abili	ity to reco	ognize b	usines	s opport	unity					
CO2	Do a se	Do a self analysis to build a entrepreneurial career.													
CO3	Articula	Articulate an effective elevator pitch.													
CO4	Analyze	e the loca	l marke	t enviror	nment &	demonst	rate the	ability	to find	an att	ractive r	narket			
C05	Identify	the requ	ired skil	lls for en	treprene	urship &	develop	1							
Mapping of	Course	Outcom	es with	Program	n Outco	mes (PO	s)								
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO	9	PO10	PO11	PO12		
CO1		Μ	Μ	Н	Μ	Μ	Μ		N	1	Μ	Μ	L		
CO2	Η	Μ		Н	Μ	Н	Μ	H	H	I	H	Μ	Μ		
CO3		Μ	Μ	Μ		Η		Η	H	I	H				
CO4		Н	Μ	Μ	Μ	Μ		Н	N	1	Μ	Н			
CO5		Μ	Μ	Н	Н	N	1	Μ	Н	L					
H/M/L indi	cates str	ength of	correla	tion H	– High,	M – Me	dium, I	2 – Lo	W			-			
Category	Basic Basic Sciences Sciences Sciences Sciences Program Electives Electives Flectives Project Project Project Sciencal Social Social Social Social Social Social Social Sciences Sciences Social Sciences Social Sciences Social Sciences Social Sciences Social Sciences Social Sciences Scie														



#### BES18ET1 ORIENTATION TO ENTREPRENEURSHIP AND PROJECT LAB 0 0/0 2/0 1

#### UNIT I CHARACTERISTICS OF A SUCCESSFUL ENTREPRENEUR

Introduction to entrepreneurship education – Myths about entrepreneurship – How has entrepreneurship changed the country – Dream it. Do it - Idea planes - Some success stories – Global Legends – Identify your own heroes.

#### UNIT II ENTREPRENEURIAL STYLE

Entrepreneurial styles – Introduction, concept & Different types - Barrier to Communication – Body language speaks louder than words

#### UNIT III DESIGN THINKING

Introduction to Design thinking – Myth busters – Design thinking Process - Customer profiling – Wowing your customer – Personal selling – concept & process – show & tell concept – Introduction to the concept of Elevator Pitch

#### UNIT IV RISK MANAGEMENT

Introduction to risk taking & Resilience – Managing risks (Learning from failures, Myth Buster) – Understanding risks through risk takers – Why do I do? – what do I do?

#### UNIT V PROJECT

How to choose a topic – basic skill sets necessary to take up a project – creating a prototype – Pitch your project – Project presentation.

**Total No of Periods : 15** 

#### **REFERENCE BOOKS & WEBSITE:**

- 1. Encyclopedia of small Business (2011) (e book)
- 2. Oxford Handbook of Entrepreneurship (2014) (ebook)
- 3. lms.learnwise.org



				Periya	r E.V.R. High R	load, Maduravoya	il, Chennai-95. Ta	amilnadu. Inc	lia.			_			
Subject Code:	t	Su	bject Na	me :CO	OMMU	NICATI	ON LAB	5	Ty / L ETI	b/	L	T/S	P/F	2	С
REN18	RET1								LIL	·		LI			
DENIO		Pr	erequisi	te : Nor	ie				ETI		1	0/0	2/0	)	1
L : Lec	ture '	T : Tuto	rial SLr	: Super	vised Le	earning P	: Project	R : Re	search	C: (	Credits				
T/L/ET	רידי	Theory /	Lab / En	nbedded	Theory	v and Lab									
			Euc / En		111001	und Edo									
OBJEC	<b>SIIV</b>	/ES :													
The stu	dent	should	be able to	)											
•	Use	approp	riate voca	abulary	and stru	cture for	effective	interpe	ersonal	and	academ	nic comr	nunic	ation.	
•	Inte	rpret ch	arts, diag	rams, a	dvertise	ments, etc	с.								
•	Part	ticipate i	in group	discussi	ons and	present p	orojects e	ffective	ely.						
•	Pres	sent proj	jects and	ideas ef	fectivel	У									
•	Atte	end inter	views												
COUR	SE ( ts co	DUTCO	OMES (C og the co	os) : (3 urso wa	– 5) re oble	to									
CO1	U	Use appropriate vocabulary and structure for effective interpersonal and academic communication													
CO2	Use appropriate vocabulary and structure for effective interpersonal and academic communication Interpret charts, diagrams, advertisements, etc.														
CO3	Pa	articipat	e in grou	p discus	sions a	nd present	t projects	effecti	velv						
CO4	Pı	resent pr	oiects an	d ideas	effectiv	relv									
CO5	A	ttend int	terviews			)									
Mappi	ng of	f Course	e Outcor	nes witl	n Progr	am Outc	omes (P	Os)							
COs/P	Os	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	PO8		PO9	PO10	P	011	PO12
CO1												H			
CO2												Н			
CO3												Н			
CO4												Н			
CO5												Н			
H/M/L	indi	icates st	rength o	f corre	ation	H – High	, M – M	edium,	L - L	ow					
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1 0/0 2/0 1

BET18ET1

UNIT I<br/>Listening and Speaking- Informal and Formal Contexts6UNIT II<br/>Interpretation of charts / Diagrams – Group Discussion6UNIT III<br/>Compeering -Anchoring -Group Discussion6UNIT IV<br/>Formal Presentation -Power point presentation of charts/ Diagrams8UNIT V4

Interview

#### **SUGGESTED READINGS:**

(i) Practical English Usage. Michael Swan. OUP. 1995.
(ii) Remedial English Grammar. F.T. Wood. Macmillan.2007
(iii) Study Writing. Liz Hamp-Lyons and Ben Heasly. Cambridge University Press. 2006.
(iv) Communication Skills. Sanjay Kumar and Pushp Lata. Oxford University Press. 2011.
(v) Exercises in Spoken English. Parts. I-III. CIEFL, Hyderabad. Oxford University Press
(vi) Pronunciation in Use ,Mark Hancock. Cambridge University Press. 2012

					Periyar E.V	R. High Road	l, Maduravoyal, Chei	nnai-95. Tamilnadu. Ir	ıdia.				
Subject C BBI18TS	ode: 1	Subje	ct Name	e: T	ECHN	ICAL S	SKILL 1		TY / LB/ ETL	L	T / S.Lı	: P/ R	C C
		Prere	quisite:	None					L	0	0/0	3/0	1
L : Lecture	e T : Tut	orial	SLr : Su	pervise	d Learr	ning P	: Project R	R : Research	C: Credits				
T/L/ETL :	Theory/	'Lab/En	nbedded	Theor	y and L	ab							
OBJECT	IVE :Th	e objec	tive is to	o develo	op the te	echnica	l skill of th	e students.					
COURSE	OUTC	OMES	(COs)	(3-5)									
COCRDE			(005)	(0 0)									
COI	Develo	p the te	chnical s	skills re	equired	in the f	ield of stud	ly					
CO2	Bridge	the gap	between	n the sk	till requ	iremen	ts of the en	nployer or in	ndustry and the	e comp	etency of	f the stu	dents.
CO3	Enhanc	e the er	nployab	ility of	the stud	lents.							
Monning	of Cour			rith Dr	anom	Outoor	nog ( <b>DO</b> g)						
wrapping		se Outo	comes w	iui Pro	ogram	Outcol	nes (POS)		1				
COs/POs	PO1	PO	PO3	PO	PO5	PO	PO7	PO8	<b>PO9</b>	POI	l0 PO	11	PO12
		2		4		6							
CO1	H	H	Н	Н	Н	Н	М	M M H M		H	М		
CO2	Н	Н	Μ	Н	Н	Н	М	М	Н	H	[	H	Н
CO3	Н	Н	Н	Н	Н	Н	М	М	Н	H	[	H	Н
COs /	PS	01	PS	02	PS	03	F	SO4	PSO5				
PSOs													
CO1	I	I	E	I	I	I		Н	Н				
CO2	I	I	E	I	I	I		Н	Н				
CO3	I	Ι	E	I	I	I		Н	Н				
H/M/L inc	licates S	trength	of Corre	elation	H- Hi	gh, M-	Medium, I	L-Low					
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Subject Code BEN18SK1	: Subjec CONF	t Name IDENC	:SOI E BU	FT SK JILDI	NG)	I (CAR	ND	TY / LB/ ETL	L	T S.I	'/ Lr	<b>P/ R</b>	С	
	Prereq	uisite: l	None						ETL	0	0,	/0	3/0	1
L : Lecture T :	Tutorial	SLr : Su	pervi	ised L	earning	P:Pr	oject R	: Research	C: Cred	lits		I		<u> </u>
T/L/ETL : The	eory/Lab/En	nbedded	l The	ory an	d Lab									
OBJECTIVE	:													
• To cre	ate awarene	ess in stu	ident	s, vari	ous top	compa	nies hel	ping them	improve	their s	kill set	matrix	, leadi	ng to
develo	p a positive	e frame (	of mi	ind.	1	•	£ 1	1.4	4	. 1 1 1	41			1
• 10 he	p students	be awar	e of	variou	s techn	iques c	of candi	date recrui	tment ar	nd help	them p	orepar	e CV's	s and
• To hel	e. n student h	ow to fa	ce va	arious	types of	f interv	iew nre	-naring for	HR tecl	hnical i	ntervie	ws		
• To he	p student in In students	improve	e thei	ir verh	al read	ing na	rration	and presen	tation sk	cills by	perfor	ms va	rious 1	nock
session	ns.	mprove			ur roud	<u>6</u> ,	iiuioii	una presen	unon si	uns og	perior	1115 14	110051	nour
COURSE OF	TCOMES	(COs):	( 3-	5)										
Students will be	able to	(005)		2)										
CO1 Be	aware of va	rious to	o con	npanie	s leadii	ng to in	proven	nent in skil	ls among	gst then	n.			
CO2 Be	aware of v	arious c	andic	date re	cruitm	ent tech	iniques	like group	discuss	sion, in	terview	s and	be ab	le to
prej	pare CV's a	nd resur	nes.											
CO3 Pre	pare for diff	erent ty	pes o	of inter	views a	and be p	orepare	d for HR ar	nd techni	ical inte	erviews	•		
CO4 Imp	prove their v	ve their verbal, written and other skills by performing mock sessions.												
Mapping of C	Course Out	comes w	vith <b>F</b>	Progra	am Out	tcomes	(POs)							
COs/POs	PO1	PO2	P	PO4	PO5	PO6	<b>PO7</b>	PO8	PO	9	PO10	PO	11 P	012
			$\begin{vmatrix} 0\\ 3 \end{vmatrix}$											
CO1	L	L	L	L	L	М	Μ	Н	Μ		Η	Μ	[	H
CO2	L	L	L	L	L	Μ	Μ	Н	Μ		Η	Μ	[	Η
CO3	L	L	L	L	L	Μ	Μ	Н	Μ		Η	Μ	[	Η
CO4	L	L	L	L	L	М	Μ	Н	Μ		Н	Μ	[	H
COs /	PSO	1	PS	SO2	PS	03	P	SO4	PSO	)5				
PSOs														
CO1	L			L	I	I		L	L					
CO2	L			L	l	H		L	L					
CO3						1								
UU4	L L H L								L					
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gory	tegory Basic Sciences Engineering Sciences Humanities and Social Program Core Program Electives Open Electives Practical / Project Internships / Technical Skill													
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B.Tech. –Biomedical Instrumentation



#### BEN18SK1

#### SOFT SKILLS I (CAREER AND CONFIDENCE BUILDING)

#### UNIT I

6

6

6

6

6

1

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3/0

Creation of awareness of top companies / improving skill set matrix / Development of positive frame of mind / Creation of self-awareness

#### UNIT II

Group discussions / Do's and don'ts – handling group discussions / what evaluators look for interpersonal relationships / Preparation of Curriculum Vitae / Resume

#### UNIT III

Interview – awareness of facing questions – Do's and don'ts of personal interview / group interview, enabling students to prepare for different proce3dures such as HR interviews and Technical Interviews / self-introductions

#### UNIT IV

Verbal aptitude, Reading comprehension / narration / presentation / Mock Interviews

#### UNIT V

Practical session on Group Discussion and written tests on vocabulary and reading comprehension

**Total No of Periods: 30** 



Subject Code: Subject Name : TECHNICAL SKILL 2 TY/ Τ/ С L **P/ R BBI18TS2** LB/ S.Lr ETL **Prerequisite: Technical Skill 1** 0 0/0 3/01 L L: Lecture T: Tutorial SLr: Supervised Learning P: Project R: Research C: Credits T/L/ETL : Theory/Lab/Embedded Theory and Lab **OBJECTIVE** : The objective is to develop the technical skill of the students. COURSE OUTCOMES (COs) : (3-5) **CO1** Develop the technical skills required in the field of study **CO2** Bridge the gap between the skill requirements of the employer or industry and the competency of the students. **CO3** Enhance the employability of the students. Mapping of Course Outcomes with Program Outcomes (POs) COs/POs **PO1 PO2** PO3 **PO4 PO5 PO6 PO7 PO8 PO9 PO11 PO10 PO12 CO1** Η Η Η Η Η Η Μ Μ Η Μ Η Μ **CO2** Η Η Μ Η Н Η Μ Μ Η Η Η Η **CO3** Η Η Η Η Η Η Η Μ Μ Η Η Η PSO5 COs / PSOs PSO1 PSO<sub>2</sub> PSO3 PSO4 C01 Η Н Н Н Η **CO2** H Н Η Η Н **CO3** Н Η Η Η Η H/M/L indicates Strength of Correlation H- High, M- Medium, L-Low internships / Technical Skill Social **Engineering Sciences** Program Electives Practical / Project Humanities and **Dpen Electives Basic Sciences** Program Core Soft Skills Sciences Category



Subject Code BEN18SK2	: Su AN	bject Na ND QUA	ame : SC NTITAT	)FT SK IVE SK	TY / LB/ ETL	L	T / S.Lr	P/ R	C				
	Pro	erequisi	te: Soft S	kills - I					ETL	0	0/0	3/0	1
L. L. a strains T.	Traction	1 01	<u>C</u>	. 1 T		Duciest	<b>D</b> . <b>D</b>		Cas l'ite				
L: Lecture 1 :	: I utoria	I SLT:	Supervise	ed Learr	ung P:	Project	R : Res	earch C:	Credits				
OBJECTIVE	• The	main ob	iective is t	y allu L	au then the	logical	and arit	hmetic r	easoning	kills of t	he studer	nts	
ODJECTIVE	• • • •	mann oo		o such	, unen une	logical			casoning s	skins of (	ne studel	11.5.	
• To hel	lp studer	nts to im	prove thei	r Logica	al reason	ing.							
• To hel	lp studer	its to im	prove thei	r arithm	etic reas	soning.							
• To hel	lp studer	its impro	ove their d	lata inter	rpretatio	n skills							
COURSE OU	JTCOM	ES (CO	s) : ( 3- 5)	)									
CO1	Prepare	e student	s for Log	ical reas	oning								
CO2	Prepare	e student	s for arith	metic re	easoning	,							
CO3	Prepare	e student	s for data	a interpr	etation s	kills							
Mapping of C	Course C	rse Outcomes with Program Outcomes (POs)											
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO	12
CO1	L	L	L	L	L	Μ	Μ	Н	Μ	Н	Μ	]	H
CO2	L	L	L	L	L	Μ	Μ	Η	Μ	H	Μ	]	H
CO3	L	L	L	L	L	Μ	Μ	Н	Μ	Н	Μ	]	H
COs / PSOs	PS	01	PSC	02	PS	03	PS	504	PSO5				
CO1	]	L	L	1	I	H		L	L				
CO2	]	L	L	1	I	H		L	L				
				· · · · · · · · · · · · · · · · · · ·				L	L				
H/M/L indicat	es Stren	gth of C	orrelation	H- H1	gn, M- I	Vledium	, L-Low			1			
şory	Basic Sciences Engineering Sciences Humanities and Social Sciences Program Core Program Electives Program Electives Practical / Project Internships / Technical Ski Soft Skills												
Cates									$\checkmark$				

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BEN18SK2	SOFT SKILLS II ( QUALITATIVE AND QUANTITATIVE SKILLS)	0	0/0	3/0	1
<b>UNIT I</b> Logical State	LOGICAL REASONING I ements – Arguments – Assumptions – Courses of Action			6	
<b>UNIT II</b> Logical conc	<b>LOGICAL REASONING II</b> lusions – Deriving conclusions from passages – Theme detect	tion		6	
<b>UNIT III</b> Number syst Proportion –	<b>ARITHMETICAL REASONING I</b> tem – H.C.F and L.C.M – Problem on ages – Percentage Partnership	– Profit and	Loss –	<b>6</b> Ratio and	
<b>UNIT IV</b> Time and We – Odd man o	<b>ARITHMETICAL REASONING II</b> ork – Time and Distance – Clocks – Permutations and Combin ut and Series	nations – He	ights and	<b>6</b> Distances	
<b>UNIT V</b> Tabulation –	<b>DATA INTERPRETATION</b> Bar graphs – Pie graphs – Line graphs			6	
		Tota	l No of Po	eriods: 30	

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#### **REFERENCE BOOKS:**

- 1. R.S.Agarwal, A modern approach to Logical Reasoning, S.Chand and Co., (2017).
- 2. R.S.Agarwal, A modern approach to Verbal and Non verbal Reasoning, S.Chand and Co., (2017).
- 3. R.S.Agarwal, Quantitative Aptitude for Competitive Examinations, S.Chand and Co., (2017).
- 4. A.K.Gupta, Logical and Analytical Reasoning, Ramesh Publishing House, (2014).
- 5. B.S.Sijwali, Indusijwali, A new approach to Reasoning (Verbal and Non verbal), Arihant Publishers, (2014).



Subject Code	: Su	bject Na	ame : MI	NI PRO	JECT/		TY/	L	Τ/	<b>P/ R</b>	С		
BBI18L07	TR	AININ	G/ INDU	STRIAI	L TRAI	NING			LB/ ETL		S.Lr		
	Pro	erequisi	te: None						L	0	0	3/0	1
L : Lecture T :	Tutoria	l SLr :	Supervise	ed Learr	ning P:	Project	R : Res	earch C	: Credits	II			
T/L/ETL : The	ory/Lab	/Embed	ded Theor	y and L	ab								
OBJECTIVE	: The n	nain obj	ective of	the Inpla	ant train	ing is to	o provid	e a sho	rt-term wo	rk exper	ience in a	ın Indu	stry/
Company/ Org	anizatio	n											
COURSE OU	TCOM	ES (CO	s) : ( 3- 5)	)									
CO1	To get	an insig	ht of an in	dustry /	organiz	ation/co	mpany p	ertainii	ng to the do	omain of	study		
CO2	To acq	uire skil	ls and kno	wledge	for a sm	ooth tra	nsition i	nto the	career.				
CO3	To gair	n field ex	xperience	and get	linked w	ith the p	professio	onal net	work				
Mapping of C	Course C	Outcome	s with Pr	ogram	Outcom	es (POs	;)						
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO	12
CO1	Μ	M L L L H H H						Н	Н	H	]	H	
CO2	Н	Μ	Н	Μ	Μ	Μ	Μ	Μ	Н	Н	Н	N	ſ
CO3	H	Н	Н	Н	Μ	Н	Μ	Н	Н	Н	H	N	Л
COs / PSOs	PSO1		PSO2		PSO3	I	PSO4		PSO5				
CO1	Н		Н		Н		Н		Н				
CO2	Н		Н		Н		Н		Н				
CO3	Н		Н		Н		Н		H				
H/M/L indicat	es Streng	gth of C	orrelation	H- Hi	gh, M- I	Medium	, L-Low						
gory	Basic Sciences	Engineering Sciences	Humanities and Social Sciences	Program Core	Program Electives	Open Electives	Practical / Project	Internships / Technical Skill	Soft Skills				
Cateş													



Subject Code:	Subject Name	: TEC	CHNI	CAL S	KILL	3			TY F	/ LB/ TL	L	T S.J	/ ] [.r	P/ R	С
BBI18TS3	Prerequisite: T	TECH	NIC	AL SKI	LL 2					L	0	0/	0 3	3/0	1
L : Lecture T : T	Tutorial SLr : Su	upervi	ised I	Learning	P : P	Project	tR:I	Resear	ch C:	Credits				I	
T/L/ETL : Theo	ry/Lab/Embedde	d The	ory a	nd Lab											
<b>OBJECTIVE</b> :	The objective is t	o deve	elop t	he techr	nical s	kill of	f the s	tudent	s.						
COURSE OUT	COMES (COs)	:(3-	5)												
CO1		Deve	lop tł	ne techni	cal sk	tills re	quire	d in th	e field	of stud	у				
CO2		Bridg	ge the	gap bet	ween	the sk	ill req	luirem	ents of	f the em	ploy	er or	indus	try ai	nd
		the co	ompe	tency of	the st	udent	s.								
CO3		Enha	nce th	ne emplo	oyabil	ity of	the st	udents	5.						
Mapping of Co	urse Outcomes	with P	Progr	am Out	come	s (PO	s)								
COs/POs		Р	P	PO3	Р	Р	Р	Р	PO	PO9	P	0	PO	PC	)12
		0	0		04	05	06	07	8		1	0	11		
		1	2												
CO1		H	H	H	H	H	H	M	M	<u>H</u>		M	H		$\frac{M}{H}$
C02		н н	н н	M H	н Н	н н	н н	M	M	<u>н</u> н		н н	н Н		<u>н</u> н
COs / PSOs		PS	501	PSC	)2	PS	03	PSO4		PSO5		**			<u></u>
CO1			<u>и</u>	н				1	T	ц					
CO1		1	H	H		I	I T	I	I T	 H					
CO3		]	H	H		I	I	]	H	H					
H/M/L indicates	elatio	n H	I- High,	M- M	lediun	n, L-L	.OW								
Category			Engineering Sciences	Humanities and Social Sciences	Program Core	Program Electives	Open Electives	Practical / Project	Internships / Technical Skill	Soft Skills					
(															

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Subject BBI18I	t Code: L10	de: Subject Name :PROJECT PHASE - I								TY / LB/	L	T / S.Lr	P/ R	C
										ETL				
		Pr	erequisi	te: None						L	0	0/0	3/3	2
L : Lect	ture T :	Tutoria	l SLr :	Supervis	ed Learr	ning P:	Project	R : Res	earch C	Credits	1			
T/L/ET	L : The	ory/Lat	/Embed	ded Theor	y and L	ab								
OBJEC	CTIVE	:The ob	jective of	f the Main	Project	is to cul	minate t	he acade	emic stud	ly and pro	vide an o	opportuni	ty to exp	olore
a proble	em or i	ssue,ad	dress thr	ough focu	ised and	l applied	l researc	h under	the dire	ection of a	a faculty	mentor.	The pro-	oject
demons	strates t	he stud	ent's abi	lity to syr	thesize	and app	ly the k	nowled	ge and s	skills acqu	ired to	real-worl	d issues	and
problem	ns. This	s projec	t affirms	s the stud	ents to	think cr	itically	and crea	atively,	find an op	otimal s	olution, 1	nake et	hical
decision	ns and t	o prese	nt effecti	vely.										
COUR	SE OU	TCOM	ES (CO	s):(3-5)	)									
CO1	Appl	y the kn	owledge	and skills	s acquire	ed in the	course	of study	address	ing a spec	ific prol	olem or is	sue.	
CO2	To er	ncourag	e studen	ts to thin	k critica	lly and	creative	ly about	t societa	l issues a	nd deve	lop user	friendly	and
	reach	able sol	utions											
CO3	To re	fine res	esearch skills and demonstrate their proficiency in communication skills.											
CO4	To ta	ke on th	the challenges of teamwork, prepare a presentation and demonstrate the innate talents.											
Mappi	ng of C	ourse (	Outcome	es with Pr	ogram	Outcom	es (POs	;)						
COs/PO	Os	PO1	PO2	PO3	PO4	PO5	PO6	<b>PO7</b>	PO8	PO9	PO10	PO11	PO	12
CO1		H	Н	Η	Η	Μ	Η	H	L	Μ	Μ	H	]	H
CO2		H	Н	Η	Η	H	Η	H	Μ	Μ	Μ	H	]	H
CO3		H	Н	H	Η	Η	H	H	Μ	Μ	Η	H	I	M
CO4		H	Μ	H	Η	Η	H	Μ	Η	Η	Η	H	]	H
COs / I	<b>PSOs</b>	PS	501	PSC	02	PS	03	PS	504	PSO5				
CO1			H	H	[	]	H	]	H	Η				
CO2			H	Н	[	l	H	]	H	Н				
CO3			H	Н	[	l	H	]	H	Н				
CO4			H	Н	[	]	H	]	H	H				
H/M/L	indicate	es Stren	gth of C	orrelation	H- Hi	gh, M- 1	Medium	, L-Low	, 1 1			•		
									skill					
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Subject Code: BHS18FLX	: Su	bject Na	ame :FOI	REIGN	LANGU		TY / LB/ FTI	L	T / S.Lr	P/ R	C				
	Pr	erequisi	te: None						L	0	0/0	3/0	1		
L : Lecture T :	Tutoria	1 SLr :	Supervis	ed Learr	ning P:	Project	R : Res	earch C:	Credits						
T/L/ETL : The	ory/Lab	/Embed	ded Theor	ry and L	ab										
OBJECTIVE	:To rec	ognize tl	ne cultura	l values,	, practice	es, and h	eritage	of the for	reign cou	ntry, com	municat	e effecti	ively		
in a foreign lar	nguage a	and inter	act in a cu	ılturally	appropr	iate mar	nner witl	h native s	speakers of	of that la	nguage.				
COURSE OU	тсом	ES (CO	s) : ( 3- 5	)											
CO1	Achie	ve funct	ional prof	iciency	in listen	ing, spe	aking, re	eading, a	nd writing	3.					
CO2	Devel	op an in	sight into	the natu	re of lar	iguage i	tself, the	e process	of langua	age and c	ulture ad	quisitio	n.		
CO3	Deco	le, analy	ze, and in	terpret a	authentic	e texts of	f differe	nt genres	5.						
Mapping of C	Course C	Outcome	s with Pr	ogram	Outcom	es (POs	5)								
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO	12		
CO1	L	L	L	L	L	Н	L	Н	M	Н	Н	]	L		
CO2	Μ	L	L	L	L	Н	L	Н	H	Н	Н	]	L		
CO3	L	L	Μ	Μ	L	Н	M	Н	Μ	Н	Н	]	Ĺ		
COs / PSOs	PS	01	PSO	02	PS	03	PS	504	PSO5						
CO1	]	L	L		]	L		L	L						
CO2	]	L	L	1	]	Ĺ		L	L						
CO3	]	L	L	4	]	Ĺ		L L							
H/M/L indicate	es Stren	gth of C	orrelation	H- Hi	igh, M-	Medium	lium, L-Low								
Category	3asic Sciences	Engineering Sciences	Humanities and Social Sciences	Program Core	Program Electives	Dpen Electives	Practical / Project Internships / Technical Skill		Soft Skills						



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C. B. Palanivel

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