ELECTRICAL AND ELECTRONICS ENGINEERING DEPARTMENT

$\mathbf{EES} - \mathbf{EEE}$

2017 regulation

Semester: 3

Theory:

Course Code	Course Title	C	L	T/SLr	P/R	Ty / Lb/ ETL
BMA17006	Mathematics III For Electrical Engineers	4	3	1/0	0/0	Ту
BEE17001	DC Machines and Transformers	4	3	1/0	0/0	Ту
BEE17002	Circuit Theory and Network Synthesis	4	3	1/0	0/0	Ty
BEE17003	Electrical and Electronics Measurements	3	3	0/0	0/0	Ту
BME17I03	Thermodynamics and Fluid Mechanics	3	3	0/0	0/0	Ту

Practical:

BEE17ET1	Advancement in Electronics *	3	1	0/2	1/1	ETL
BEE17L01	DC Machines and Transformer Laboratory	1	0	0/0	3/0	Lb
BEE17L02	Electric Circuits Laboratory	1	0	0/0	3/0	Lb
BME17IL2	Fluid Mechanics and IC Engine 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	Ty / Lb/ ETL
BMA17011	Numerical Methods for Electrical	4	3	1/0	0/0	Ту
	Engineers					
BEE17004	AC and Special Machines	4	3	1/0	0/0	Ту
BEE17005	Electromagnetic Field Theory	4	3	1/0	0/1	Ту
BEE17006	Power System Protection and Switchgear	3 VPs	3	a √0 €		ISTRAR
BEC17I07	Communication Systems and IO Privar Officeriyar E.V.	.]=	T /		O/Or.	MTG, R. RESEARCH INSTITUTE to be University)
	Chennai.95	SIMUL	7	75.		V.R. High Road, I, Chennai 600 095

Practical:

BSK17ET1	Soft Skill 1	2	1	0/1	1/0	ETL
BEE17ET2	Linear and Digital Integrated Circuits*	3	1	0/2	1/1	ETL

BEE17L03	Power System Protection and Switchgear	1	0	0/0	3/0	Lb
	Laboratory					
BEE17L04	AC and Special Machines Laboratory	1	0	0/0	3/0	Lb
BEC17IL6	Digital Design Laboratory	1	0	0/0	3/0	Lb
BEE17TS1	Technical Skill 1 (Evaluation)	1	0	0/0	2/0	Lb

Semester: 5

Theory:

Course Code	Course Title	С	L	T/SLr	P/R	Ty / Lb/ ETL
BEE17007	Transmission and Distribution System	4	3	1/0	0/0	Ty
BEE17008	Control Systems	4	3	1/0	0/0	Ту
BEE17009	Power Electronics and FACTS Controllers	3	3	0/0	0/0	Ту
BEE17010	Microprocessor, Microcontroller and ARM Processor	3	3	0/0	0/0	Ту
BEC17I08	Fundamentals of Digital Signal Processing	3	3	0/0	0/0	Ty

Practical:

BEE17ET3	Design of Electrical Machines *	3	1	0/2	1/1	ETL
BEE17L05	Microprocessor, Microcontroller and ARM Processor Laboratory	1	0	0/0	3/0	Lb
	ARM Trocessor Laboratory					
BEE17L06	Control and Instrumentation Laboratory	1	0	0/0	3/0	Lb
BEC17IL5	Signal Processing and Communication Laboratory	1	0	0/0	3/0	Lb
BEE17TS2	Technical Skill 2 (Evaluation)	1	0	0/0	2/0	Lb
BEE17L07	Inplant Training (Evaluation)	1	0	0/0	2/0	Lb

Credits Sub Total: 25

Semester: 6

Theory:

Course Code	Course Title	C	L	T/SLr	P/R	Ty / Lb/ ETL
BEE17011	Power System Analysis	4	3	1/0	0/0	Ту
BEE17012	Electric Transients and High Voltage Engineering	3	3	0/0	0/0	Ту
BEE17EXX	Elective 1	3	3	0/0	0/0	Ту

BEI17I02	Industrial Drives and Automation	3	3	0/0	0/0	Ty
	Open Elective (Interdisciplinary)	3	3	0/0	0/0	Ty

Practical:

BSK17ET2	Soft Skill 2	2	1	0/1	1/0	ETL
BEE17L08	Energy Utilization and Conservation Laboratory	1	0	0/0	3/0	Lb
BEE17L09	Power Electronics and Drives Laboratory	1	0	0/0	3/0	Lb
BEE17L10	Power System Simulation Laboratory	1	0	0/0	3/0	Lb
BEE17L11	Mini Project (Evaluation)	1	0	0/0	0/2	Lb
BEE17TS3	Technical Skill 3 (Evaluation)	1	0	0/1	0/1	Lb

Credits Sub Total: 23

Semester: 7 Theory:

Course Code	Course Title	С	L	T/SLr	P/R	Ty / Lb/ ETL
BEE17013	Microgrid Technology	4	3	0/0	0/1	Ту
BEE17014	Power System Operation , Control & Power Quality	4	3	1/0	0/0	Ту
BEE17EXX	Elective 2	3	3	0/0	0/0	Ту
BEE17EXX	Elective 3	3	3	0/0	0/0	Ту
BMG17002	Management Concepts and Organization Behaviour	3	3	0/0	0/0	Ту

Practical:

BEE17ESX	Elective (Special - Based On Current Technology) *	3	1	0/2	1/1	ETL
BEE17L12	Industrial Automation Laboratory	1	0	0/1	1/1	Lb
BEE17L13	Microgrid Laboratory	1	0	0/0	2/1	Lb
BEE17L14	Project Phase – 1	2	0	0/1	0/1	Lb
BFL17001	Foreign Language (Evaluation)	2	1	0/1	0/0	Ту

Credits Sub Total: 26

Semester: 8 Theory:

Course Code	Course Title	С	L	T/S Lr	P/R	Ty / Lb/ ETL
BEE17EXX	Elective 4	3	3	0/0	0/0	Ту
BEE17EXX	Elective 5	3	3	0/0	0/0	Ту
BMG17005	Entrepreneurship Development	3	3	0/0	0/0	Ту

Practical:

BEE17L15	Project (Phase – II)	10	0	0/0	10	

Credits Sub Total: 19

Credit Summary
Semester: 1:18
Semester: 2:23
Semester: 3:24
Semester: 4:27
Semester: 5:25
Semester: 6:23
Semester: 7:26

Total Credits: 185

: 19

Semester: 8

	Elective-1					
Course Code	Course Title	С	L	T/S Lr	P/R	Ty / Lb/ ETL
BEE17E01	Solar Energy Conversion Systems	3	3	0/0	0/0	Ту
BEE17E02	Advanced Digital Signal Processing	3	3	0/0	0/0	Ту
BEE17E03	Grid Modernization	3	3	0/0	0/0	Ту

	Elective-2					
Course Code	Course Title	C	L	T/S Lr	P/R	Ty / Lb/ ETL
BEE17E04	Wind Energy Conversion Systems	3	3	0/0	0/0	Ту
BEE17E05	Artificial Intelligence	3	3	0/0	0/0	Ty
BEE17E06	Substation Designing	3	3	0/0	0/0	Ту

	Elective-3					
Course Code	Course Title	С	L	T/S Lr	P/R	Ty / Lb/ ETL
BEE17E07	Restructuring of Distribution System	3	3	0/0	0/0	Ту
BEE17E08	Material Science in Aviation	3	3	0/0	0/0	Ту
BEE17E09	Electrical Safety for Engineers	3	3	0/0	0/0	Ту

	Elective-4					
Course Code	Course Title	С	L	T/S Lr	P/R	Ty / Lb/ ETL
BEE17E10	IOT Applied to Electrical Engineering	3	3	0/0	0/0	Ту
BEE17E11	Robotics and Automation	3	3	0/0	0/0	Ту
BEE17E12	Green Building Technology	3	3	0/0	0/0	Ту

	Elective-5					
Course Code	Course Title	С	L	T/S Lr	P/R	Ty / Lb/ ETL
BEE17E13	Electrical Storage Technology	3	3	0/0	0/0	Ту
BEE17E14	Wide Area ,Monitoring Protection and Control	3	3	0/0	0/0	Ту
BEE17E15	Power Plant Instrumentation	3	3	0/0	0/0	Ту

Subject BSK17E			•		OFT SK BUILDI		I CAR	EER &		T / L/ ETL	L	T / S.Lr	P/ I	2 (
		Pre	erequisi	te: None						ETL	1	0/1	1/0	2
L : Lectu	ıre T :					earning	P : Proj	ect R:	Research	C: Credi	ts			
T/L/ETL	: The	ory/La	b/Embe	dded Th	eory and	d Lab								
OBJEC'	TIVE	:												
•	То	create	awaren	ess in st	udents,	various	top com	panies l	nelping t	hem impro	ove th	eir skill	set ma	trix,
	lea	ding to	o develo	p a posi	tive fran	ne of mi	nd.							
•					e of vari	ous tech	nniques	of candi	date rec	ruitment a	nd he	lp them	prepar	e
			l resume											
•		_						_		g for HR, t				
•		•		improve	their ve	erbal rea	ding, na	rration	and pres	entation sl	kills b	y perfo	rms vai	rious
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COURS: Students v				Os):(3	<b>5</b> )									
CO1	Be av	ware o	f variou	s top co	mpanies	leading	to impr	ovemen	t in skill	s amongst	them	١.		
CO2										discussion			nd be	able t
			's and r				_	•						
CO3										d technica	ıl inte	rviews.		
CO4	Impr	ove the	eir verba	al, writte	en and of	ther skil	ls by pe	rforming	g mock s	sessions.				
Mapping	g of Co	ourse	Outcom	es with	Progra	m Outc	omes (I	POs)						
COs/POs	S	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1	10 PC	)11 F	O12
CO1		L	L	L	L	L	M	M	Н	M	Н	M	F	
CO2		L	L	L	L	L	M	M	Н	M	Н	M	F	I
CO3		L	L	L	L	L	M	M	Н	M	Н	M	F	I
CO4		L	L	L	L	L	M	M	Н	M	Н	M	F	I
COs / PS	SOs	PS	SO1	PS	SO2	PS	O3	P	SO4	PSO5				
CO1		L		L		Н		L		L				
CO2		L		L		Н		L		L				
CO3		L		L		Н		L		L				
CO4		L		L		Н		L		L				
H/M/L in		s Strei	ngth of (		ion H-	High, N	/I- Medi	um, L-I	LOW	1	ı		•	
Category	7			ces										
				Humanities and Social Sciences					Internships / Technical Skill					
			S	ial					cal					
			nce	Soc		S		t t	hnic					
		S	Engineering Sciences	pt		Program Electives	S	Practical / Project	[ec]					
		Basic Sciences	₽ S	s ar	Program Core	leci	Open Electives	Pro	; ;					
		cie	rin (	itie	n C	n E	lect	II / II	ips	ills				
		C S	nee	ıani	ran	ran	ıΕ	tica	nsk	Soft Skills				
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Approval

#### **SOFT SKILLS I**

UNIT I 6 Hrs

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

UNIT II 6 Hrs

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

UNIT III 6 Hrs

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 6 Hrs

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

UNIT V 6 Hrs

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

**Total Number of Hours: 30 Hrs** 

Subject Cod BEE17TSX	e: Su	bject N	ame:	TECH	INICA	L SKII	L 1		T / L/ ETL		T / S.Lr	P/ R	C
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L: Lecture T			-		_	P:Pr	oject R	: Resea	arch C: C	redits			
T/L/ETL : Th							1 111 0		<u> </u>				
OBJECTIV	E: The	e object	ive is to	develop	the tec	hnical	skill of	the stud	lents.				
COURSE O	UTCO	MES (C	(Os):(3)	5- 5)									
CO1			echnical s		auired i	n the fi	eld of s	tudv					
CO2	Bridge		between						yer or ind	ustry an	d the co	ompete	ency
CO3			mployabi	ility of	the stud	ents.							
Mapping of							(POs)						
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO1	1 P	O12
CO1	Н	Н	Н	Н	Н	Н	M	M	Н	M	Н		M
CO2	Н	Н	M	Н	Н	Н	M	M	Н	Н	Н		Н
CO3	Н	Н	Н	Н	Н	Н	M	M	Н	Н	Н		Н
COs / PSOs	PS	O1	PSC	)2	PS	О3	PS	O4	PSO5				
CO1	ŀ	H	Н	-	H	H	]	Н	Н				
CO2	I	H	Н	•	H	Ŧ	]	Н	Н				
CO3	I	H	Н	-	H	Ŧ	]	Н	Н				
H/M/L indica	ites Stre	ength of	Correlat	ion H	- High,	M- Me	dium, I	L-Low			•	•	
Category	Basic Sciences	Engineering Sciences	Humanities and Social Sciences	Program Core	Program Electives	Open Electives	Practical / Project	Internships / Technical	Soft Skills				
Approval													

Subject Code BEETS17X	e: Su	bject N	ame:	TECH	INICA	L SKII	LL 2		T / L/ ETL		T / S.Lr	P/ R	C
									0	0	0	1	1
L : Lecture T					_	P : Pr	oject R	: Rese	arch C: C	redits			
T/L/ETL : Th													
OBJECTIVI	E: The	e object	ive is to	develop	the tec	hnical	skill of	the stuc	lents.				
COURSE O													
CO1	Develo	p the te	echnical s	kills re	quired i	n the fi	eld of s	tudy					
CO2	_	the gap		the sk	ill requi	rement	s of the	emplo	yer or ind	ustry ar	nd the co	mpete	ncy
CO3	Enhan	ce the e	mployab	ility of	the stud	ents.							
Mapping of							(POs)						
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO1	1 PC	O12
CO1	Н	Н	Н	Н	Н	Н	M	M	Н	M	Н		M
CO2	Н	Н	M	Н	Н	Н	M	M	Н	Н	Н		Н
CO3	Н	Н	Н	Н	Н	Н	M	M	Н	Н	Н		Н
COs / PSOs	PS	O1	PSC	)2	PS	O3	PS	O4	PSO5				
CO1	I	Н	Н		I	Ŧ	1	Н	Н				
CO2	I	Н	Н		I	Ŧ	1	Н	Н				
CO3	I	H	Н		I	I	]	Н	Н				
H/M/L indica	ites Stre	ength of	Correlat	ion H	- High,	M- Me	dium, L	L-Low					
Category	Basic Sciences	Engineering Sciences	Humanities and Social Sciences	Program Core	Program Electives	Open Electives	Practical / Project	Internships / Technical	Soft Skills				
Approval													

Subject Code BEE17L07	: !	Subject Na	me: I	NPLAN	NT TRA	INING			T / L/ ETL	L	T / S.Lr	P/R	C
DEE1/LU/									0	0	0	1	1
L : Lecture T	: Tut	orial SL	r : Super	vised L	earning	P : Pr	oject R	: Rese	arch C: C	_		1 -	1-
T/L/ETL : Th			-		_		Ü						ļ
OBJECTIVI				of the I	nplant t	raining	is to pr	ovide a	short-teri	m work	experie	nce in a	an
Industry/ Cor	_												
COURSE O	UTC				•	, .							
CO1									y pertaini			n of stu	ıdy.
CO2		-							n into the				
CO3								e profes	ssional ne	twork.			
Mapping of	_							1	1		ı		
COs/POs	PO		PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10			012
CO1	M		L	L	L	Н	H	Н	H	H	H		H
CO2	H M H H H H					H	Н	H		M			
COs / PSOs	Н	H PSO1	H PSO	Н	M	<u>Н</u> О3	Н	H SO4	H PSO5	Н	H		M
COS/PSOS CO1		H	H			H		H	H H				
CO2		H	Н			<del>I</del>		H	H				
CO3		Н	Н			H		H	Н				
H/M/L indicat	es Str	ength of Co	orrelation	H- Hi	gh, M- I	Medium	, L-Low		-1		l .	l .	
								kill					
Category	Si	ciences	nd Social		tives	Se	ject	Fechnical S					
	Basic Sciences	Engineering Sciences	Humanities and Sciences	Program Core	Program Electives	Open Electives	Practical / Project	Internships / Technical Skill	Soft Skills				
								<b>✓</b>					
Approval		•										•	

Prerequisite: Soft Skills - I  L: Lecture T: Tutorial SLr: Supervised Learning P: Project R: Research C: Credits  T/L/ETL: Theory/Lab/Embedded Theory and Lab  OBJECTIVE: The main objective is to strengthen the logical and arithmetic reasoning skills of the students.  COURSE OUTCOMES (Cos): (3-5)  CO1 Recognize and apply arithmetic knowledge in a variety of contexts.  CO2 Ability to identify and critically evaluate philosophical arguments and defend them from criticism CO3  Define data and interpret information from graphs.  Mapping of Course Outcomes with Program Outcomes (Pos)	-	,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,  ,		1								
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T/L/ETL: Theory/Lab/Embedded Theory and Lab  OBJECTIVE: The main objective is to strengthen the logical and arithmetic reasoning skills of the students.  COURSE OUTCOMES (Cos): (3-5)  CO1 Recognize and apply arithmetic knowledge in a variety of contexts.  CO2 Ability to identify and critically evaluate philosophical arguments and defend them from criticism  CO3 Define data and interpret information from graphs.  Mapping of Course Outcomes with Program Outcomes (Pos)  COs/Pos PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 CO1 H H H H H H H H L L H H H H H H CO2 M M M M H L H L H H H H H H H H CO3 H H H H H H H H H H H H H H H H H H H	1 0/1 1/0 2										L · Lecture T ·	
COURSE OUTCOMES (Cos) : (3-5)  CO1  Recognize and apply arithmetic knowledge in a variety of contexts.  CO2  Ability to identify and critically evaluate philosophical arguments and defend them from criticism cos/Pos  Pofine data and interpret information from graphs.  Mapping of Course Outcomes with Program Outcomes (Pos)  Cos/Pos  PO1  PO2  PO3  PO4  PO5  PO6  PO7  PO8  PO9  PO10  PO10  PO11  CO1  H  H  H  H  H  H  H  H  L  L  H  H  H		Zarts	. Crea	curcii C	it . Ites	Troject	U		•			
COURSE OUTCOMES (Cos): (3-5)  CO1 Recognize and apply arithmetic knowledge in a variety of contexts.  CO2 Ability to identify and critically evaluate philosophical arguments and defend them from criticism cos.  CO3 Define data and interpret information from graphs.  Mapping of Course Outcomes with Program Outcomes (Pos)  Cos/Pos PO1 PO2 PO3 PO4 PO5 PO6 PO7 PO8 PO9 PO10 PO11 CO1 H H H H H H H L L L H M H H H H CO2 M M M M H L H L H H H H H H H H H H H H							ab	y and La	ded Theor	/Embedo	eory/Lab	T/L/ETL : The
Recognize and apply arithmetic knowledge in a variety of contexts.    CO2	lls of the students.	oning skil	reasor	thmetic	and arit	e logical	gthen the	to streng				
CO2  Ability to identify and critically evaluate philosophical arguments and defend them from criticism CO3  Define data and interpret information from graphs.  Mapping of Course Outcomes with Program Outcomes (Pos)  Cos/Pos  PO1  PO2  PO3  PO4  PO5  PO6  PO7  PO8  PO9  PO10  PO11  CO1  H  H  H  H  H  H  H  H  L  L  H  H  H												COURSE OU
Define data and interpret information from graphs.			xts.	f contex	ariety o	ge in a v	nowled	hmetic k	apply arit	ize and	Recogn	CO1
Mapping of Course Outcomes with Program Outcomes (Pos)	them from criticism.	d defend	ts and	rgument	phical ar	philoso	evaluate	itically e	ify and cri	to ident	Ability	CO2
Cos/Pos         PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         P           CO1         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H					S.	m graph	tion fro	informa	l interpret	data and	Define	CO3
Cos/Pos         PO1         PO2         PO3         PO4         PO5         PO6         PO7         PO8         PO9         PO10         PO11         PO11           CO1         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H						es (Pos)	Outcom	ogram (	s with Pr	utcome	ourse O	Mapping of C
CO2         M         M         M         H         L         H         L         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H         H	PO10 PO11 PO12	PO9 P	PC	PO8								
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#### **SOFT SKILLS II**

# **UNIT I Logical Reasoning I**

6 Hrs

Logical Statements – Arguments – Assumptions – Courses of Action

# **UNIT II Logical Reasoning II**

6 Hrs

Logical conclusions – Deriving conclusions from passages – Theme detection

# **UNIT III Arithmetical Reasoning I**

6 Hrs

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

## **UNIT IV Arithmetical Reasoning II**

6 Hrs

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

# **UNIT V Data Interpretation**

6 Hrs

Tabulation – Bar graphs – Pie graphs – Line graphs

#### **Reference Books:**

- 1. R.S.Agarwal, A modern approach to Logical Reasoning, S.Chand & Co., (2017)
- 2. R.S.Agarwal, A modern approach to Verbal and Non verbal Reasoning, S.Chand & Co., (2017)
- 3. R.S.Agarwal, Quantitative Aptitude for Competitive Examinations, S.Chand & 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).

**Total Number of hours: 30Hrs** 

Subject Code: BEE17L11	Su	bject Na	me: N	MINI PI	ROJEC	T			T / L/ ETL		T / S.Lr	P/R	С
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The pro	ject de	monstra	ates the	student's	ability t	o synthe	esize and	d apply t	he knov	wledge and	l skills a	cquired to	real-v	vorld
issues a	nd pro	blems. T	his proj	ect affirm	s the stu	idents to	o think o	ritically	and cre	atively, fin	d an op	timal solu	ition, m	ake
ethical o	decisio	ns and t	to present effectively.											
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Approval

Prerequisite: NIL	P/R C	.Lr	L T	Γ/L/ ETL			SE - 2	CT PHA	PROJEC	me: I	bject Na	Sul	ubject Code: BEE17L15
T/L/ETL: Theory/Lab/Embedded Theory and Lab  OBJECTIVE: The objective of the Main Project is to culminate the academic study and provide an opporture explore a problem or issue, address through focused and applied research under the direction of a faculty mento project demonstrates the student's ability to synthesize and apply the knowledge and skills acquired to real-worl and problems. This project affirms the students to think critically and creatively, find an optimal solution, make decisions and to present effectively.  COURSE OUTCOMES (COS): (3-5)  CO1   Apply the knowledge and skills acquired in the course of study addressing a specific problem or issue.  CO2   To encourage students to think critically and creatively about societal issues and develop user friendly reachable solutions  CO3   To refine research skills and demonstrate their proficiency in communication skills.  CO4   To take on the challenges of teamwork, prepare a presentation and demonstrate the innate talents.  Mapping of Course Outcomes with Program Outcomes (POs)  COs/POS   PO1   PO2   PO3   PO4   PO5   PO6   PO7   PO8   PO9   PO10   PO11    CO1   H   H   H   H   H   H   H   H   H	0/0 10	/O C	0 0/	_	I					e: NIL	requisite	Pre	
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Subject Code : BMG170E8	Subject Name: TECHNICAL	С	L	T/SLr	P/R
BMG17 GEG	ENTREPRENEURSHIP	3	2	0/1	2/0

 $L: Lecture \ T: Tutorial \ SLr: Supervised \ Learning \ P: Project \ R: Research \ C: Credits$ 

T/L/ETL: Theory / Lab / Embedded Theory and Lab

## OBJECTIVES:

At the end of the course the learner will be able to

- Identify their flow & run interview to understand customers views.
- Do market analysis & create solutions for the identified problems
- Differentiate start up and small business & Understand the basics of lean approach
- Study the expectations of customers and investors, and interpret the revenue streams
- Articulate an effective pitch and understands how to manage risks.

# COURSE OUTCOMES (Cos) : (3-5) Students completing the course were able to

CO1	Identify	Business	<b>Opport</b>	unity, U	J <b>nderstan</b>	d Problen	ns & Pro	ovide s	olutions & o	carry out D	esign Th	inking		
	Process.	•												
CO2	Differen	tiate Cus	stomer &	c Consu	mer and p	prepare V	alue pro	portic	on canvas, ty	pes of Busi	iness mod	dels		
CO3	Interpre	et Indust	rial need	s, carry	out comp	etitive an	alysis &	perfo	rm product	market fit	test			
CO4	Analyze	primary	& secon	dary r	evenue str	eams & o _l	pt for di	fferen	t pricing str	ategies				
C05	Compos	se positio	ning stat	ement f	or the pro	duct & b	uild digi	tal pre	esence, plan	ning & bud	geting			
Mapping of	Course C	Outcomes	s with Pi	rogram	Outcome	s (POs)								
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	8 PO9 PO10 PO11 PO1					
CO1						M			M			M		
CO2	Н	Н	Н	Н	Н	Н	M		Н	M	Н			
CO3	Н	Н	Н	M	M	M				M	L			
CO4	M		M		M	L		Н		Н				
CO5	Н	Н	Н	Н	Н	M			M	M				
H/M/L indi	cates strei	ngth of c	orrelatio	n H–	High, M	– Mediur	n, L-1	Low						
Category	Basic Sciences	Engg Science			Program core	Program Electives	Ope. Elec		Practical / Project	Internships / Soft Skills Technical Skills				
							$\sqrt{}$							
Approval	I		I		1	1			I	1	1			

#### Unit –I DISCOVER YOURSELF & IDENTIFY PROBLEMS WORTH SOLVING (9)

Effectuation – Find your flow – Entrepreneurial style – How to identify Business opportunity - find problems worth solving – Methods of finding & understanding problems - How to run problem interview to understand customer's world view – Design thinking – Process & examples – Idea Generation (DISRUPT) – GOOTB

#### Unit –II CUSTOMER SEGMENT, VALUE PROPORTION & LEAN CANVAS (9)

Difference between consumer and customer – Market types – Segmentation & Targeting – Defining the personas – understanding early adopters & customer adoption pattern – early innovators for startups – creative solutions for identified problems – Deep dive into gains, pains & jobs to be done (value proportion canvas) – identify UVP using VPC – outcome driven innovation (I min customer pitch) – Basics of Lean approach & Canvas – Types of business models.

### Unit –III SIZING THE OPPURTUNITY & MVP (9)

Introduction to risks –Documents & assumptions – Build solution – Does the solution solve customer problems – Problem – solution test – Difference between a start up venture & small business – industry analysis – competition analysis – Blue ocean strategy – building MVP (document & validation of assumptions – lean feedback loop & MVP/Javelin board – MVP interviews – product market fit test

#### Unit –IV REVENUE STREAMS (9)

Basics of how companies make money – income, cost, gross and net margin – primary and secondary revenue streams – value, price & costs – different pricing strategies – product costs & unit costs – basics of unit costs – finance for business ideas – various sources of funds & its pros and cons – investor expectations – pitching to investors & corporates – shared leadership – role of good team venture's success – roles & responsibilities – pitch a candidate to join a start up – collaboration tools and techniques

#### Unit – V MARKETING & SALES (9)

Difference between product brand & link between them – positioning statement for the product – building digital presence and leveraging social media – creating company profile page – measure effectiveness of selected channels – budgeting and planning – sales planning – targets – USP – art of sales pitch – follow up and closing sale – importance of project management – work flow – delegation of tasks – basics of business regulations of starting and operating business – compliance and proper documentation.

PRACTICAL COMPONENT: CAPSTONE PROJECT PRESENTATION & EVALUATION

Total: 45 periods

Subject Code :	Subject Name : ADVANCED PROGRAM IN	L	T/S	P/R	С
BMG17OE9	ENTREPRENEURSHIP		Lr		
	Prerequisite: BMG170E8	1	0/1	2/0	3

L: Lecture T: Tutorial SLr: Supervised Learning P: Project R: Research C: Credits

T/L/ETL: Theory / Lab / Embedded Theory and Lab

# OBJECTIVES:

- Revisit and evaluate the business model & reposition the scalability.
- Understand traction, identify & measure the effectiveness of selected channels
- Stabilize the revenue streams & explore new channels
- Understand the need to build team beyond founder
- Identify technology needs and keep proper documentation.

COURSE OUTCOMES (Cos): (3-5)

Students completing the course were able to

CO1	Identif monet	•	nal cust	tomer	segment (	& relool	k probler	m statei	nent and	l additiona	al ways to	0
CO2		re tractio	n, iden	tify va	rious cha	nnels an	d measu	re its e	ffectiven	ess.		
CO3	Set tar	gets, arti	culate s	ales pi	tch & bu	ild a pro	ofessiona	l team				
CO4	Test p	rice elasti	city, an	alyze o	competito	rs and p	perform	financi	al modeli	ing of vent	ure grov	vth
C05	Use ted		as a cor	npetiti	ve tool &	apply f	or paten	ts and ı	ındersta	nd Intellec	ctual Pro	perty
Mapping of	Course	Outcomes	with Pr	ogram	Outcome	s (POs)						
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO10	PO11	PO12
CO1	Н	Н	M	M	M		Н		Н	Н		L
CO2			Н	M			M				Н	
CO3				Н		M					Н	
CO4			Н	M	M	M	M	M	Н			L
CO5	Н		Н	M	Н	M		L		Н		M
H/M/L indi	icates sti	rength of	correla	tion I	H – High,	M – Mo	edium, I	L – Low	7			
Category	Basic Sciences	Engg Sciences	Humaniti es	& Social Sciences	Program core	Program Electives	Open Electives	Practical /	Project	Internship s/ Technical Skills	Soft Skills	
								$\sqrt{}$				



# BMG170E9 ADVANCED PROGRAM IN ENTREPRENEURSHIP 1 0/1 2/0 3

#### UNIT I GROWTH, EXPANSION & SCALING

9Hrs

Growth stage and start up phase – revisiting business model and develop few variants – additional customer segments – evaluation of business models for new customer segments – relook of problem statement and repositioning for scalability – additional ways to monetize.

.

#### UNIT II SCALING & STRATEGY

9Hrs

Gain traction beyond early customer – defining and measuring traction – cost of new customer acquisition

- customer life time value identify wastes and what's important for traction bullseye framework
- identifying channels measurement of effectiveness of selected channels

#### UNIT III SALES PLANNING

9Hrs

Budgeting & Planning – stabilizing key revenue streams – additional revenue streams – exploring new channels and partnerships – sales planning and setting targets – unique sales proportion – art of sales pitch – building a professional team – sales compensation and incentives

#### UNIT IV FINANCIAL MODELLING

9Hrs

testing price elasticity – optimizing cost and operational expenses – advanced concepts in unit costing – financial modeling of venture growth – analyzing competitor and peer's financial models – various sources of funding – investors and lenders expectations - pitch practice – Building teams beyond founders – basics of compensation, incentives and stock options

#### UNIT V TECHNOLOGY PLANNING

9Hrs

Identify technology needs – cost of using technology to build and grow the business – Technology as a differentiator and competitive weapon – overview of legal issues – importance of getting professional help – importance of being compliant and keeping proper documentation – patents and intellectual property - trademarks

PRACTICAL COMPONENT: CAPSTONE PROJECT - PITCH YOUR VENTURE

**Total: 45 periods** 

# $Curriculum-2018\ Regulation$

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

Credits Sub Total: 20

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

**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

	III SEMESTER										
S.NO.	SUBJECT CODE	SUBJECT NAME	C	L	T/ SLr	P/R	Ty/ Lb/ ETL				
1	BEE18001	Circuit Theory and Network Analysis	4	3	1/0	0/0	Ty				

2	BEE18002	DC Machines and Transformers	4	3	1/0	0/0	Ty
3	BEE18003	Electromagnetic Field Theory	3	3	0/0	0/0	Ty
4	BEE18004	Electrical and Electronics Measurements	3	3	0/0	0/0	Ty
5	BME18I03	Thermodynamics and Fluid Mechanics	3	3	0/0	0/0	Ty
		PRACTICALS*					
1	BEE18L01	Electrical Machines - I Lab	1	0	0/0	3/0	Lb
2	BEE18L02	Electrical Circuits Lab	1	0	0/0	3/0	Lb
3	BME18IL2	Fluid Mechanics and IC Engine Lab	1	0	0/0	3/0	Lb

	IV SEMESTER											
S.NO.	SUBJECT CODE	SUBJECT NAME	С	L	T/ SLr	P/R	Ty/ Lb/ ETL					
1	BMA18011	Numerical Methods for Electrical Engineers	4	3	1/0	0/0	Ty					
2	BEE18005	AC and Special Machines	4	3	1/0	0/0	Ту					
3	BEE18006	Power System - I	3	3	0/0	0/0	Ty					
4	BEC18I07	Communication Systems and IOT	3	3	0/0	0/0	Ty					
5	BHS18NC1/ BHS18NC2	The Indian Constitution*/ The Indian Traditional Knowledge*	NC	2	0/0	0/0	Ту					
		PRACTICALS*										
1	BEE18ET1	Linear and Digital Integrated Circuits	3	1	0/1	3/0	ETL					
2	BEE18L03	Electrical Machines –II Lab	1	0	0/0	3/0	Lb					
3	BEE18L04	Measurement and Instrumentation Lab	1	0	0/0	3/0	Lb					
4	BEC18IL5	Signal Processing and Communication Lab	1	0	0/0	3/0	Lb					
<mark>5</mark>	BEE18TS1	Technical Skill 1 (Computer Software Packages)	1	0	0/0	3/0	Lb					
<mark>6</mark>	BEN18SK1	Soft Skill I (Career and Confidence Building)	1	0	0/0	<mark>3/0</mark>	ETL					

**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

		V SEMESTER					
S.NO.	SUBJECT CODE	SUBJECT NAME	C	L	T/ SLr	P/R	Ty/ Lb/ ETL
1	BEE18007	Power System - II	4	3	1/0	0/0	Ty
2	BEE18008	Control System	3	3	0/0	0/0	Ty
3	BXX18EXX	Elective 1	3	3	0/0	0/0	Ty
4	BXX18OEX	Open Elective 1	3	3	0/0	0/0	Ty
		PRACTICALS*					
1	BEE18ET2	Design of Electrical Machines	3	1	0/1	3/0	ETL

2	BEE18L05	Electronics Lab	1	0	0/0	3/0	Lb
3	BEE18L06	Control System Lab	1	0	0/0	3/0	Lb
4	BEI18IL1	Microprocessor, Microcontroller and ARM Processor Lab	1	0	0/0	3/0	Lb
<mark>5</mark>	BEE18TS2	Technical Skill 2 (Electrical Software Packages)	1	0	0/0	3/0	Lb

		VI SEMESTER					
S.NO.	SUBJECT CODE	SUBJECT NAME	С	L	T/ SLr	P/R	Ty/ Lb/ ETL
1	BEE18009	Power System - III	4	3	1/0	0/0	Ty
2	BEE18010	Power Electronics - I	4	3	1/0	0/0	Ty
3	BXX18EXX	Elective II	3	3	0/0	0/0	Ty
4	BXX180EX	Open Elective 2	3	3	0/0	0/0	Ty
		PRACTICALS*					
1	BEE18ET3	Energy Utilization and Conservation	3	1	0/1	3/0	ETL
2	BEE18L07	Electrical Practice Lab	1	0	0/0	3/0	Lb
3	BEE18L08	Power System Lab	1	0	0/0	3/0	Lb
4	BEN18SK2	Soft Skill II (Qualitative and Quantitative Skills)	1	0	0/0	3/0	ETL
<mark>5</mark>	BEE18L09	Mini Project/Inplant Training/Industrial training	1	0	0/0	3/0	<u>Lb</u>
<mark>6</mark>	BEE18TS3	Technical Skill 3 (Evaluation of Design and Implementation Practice)	1	0	0/0	3/0	Lb

**Credits Sub Total: 22** 

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

		VII SEMESTER					
S.NO.	SUBJECT CODE	SUBJECT NAME	C	L	T/ SLr	P/R	Ty/ Lb/ ETL
1	BEE18011	Microgrid Technology	4	3	1/0	0/0	Ту
2	BXX18EXX	Elective III	3	3	0/0	0/0	Ty
3	BXX18EXX	Elective IV	3	3	0/0	0/0	Ty
4	BMG18002	Management Concepts and Organizational Behavior	3	3	0/0	0/0	Ту
		PRACTICALS*					
1	BEE18ET4	Industrial Drives and Automation	3	1	0/1	3/0	ETL
2	BEE18L10	Microgrid Lab	1	0	0/0	3/0	Lb
3	BEE18L11	Power Electronics and Drives Lab	1	0	0/0	3/0	Lb

<mark>4</mark>	BEE18L12	Project Phase – I	2	0	0/0	<mark>3/3</mark>	<mark>Lb</mark>
<mark>5</mark>	BHS18FLX	Foreign Language	1	0	O/O	<mark>3/0</mark>	TY
6	BXX18OLX	Open Lab	1	0	0/0	3/0	Lb

		VIII SEMESTER					
S.NO.	SUBJECT CODE	SUBJECT NAME	С	L	T/ SLr	P/R	Ty/ Lb/ ETL
1	BEE18012	Power Electronics - II	4	3	1/0	0/0	Ty
2	BEE18013	Smart Grid Technology	3	3	0/0	0/0	Ty
3	BXX18EXX	Elective V	3	3	0/0	0/0	Ty
		PRACTICALS*					
1	BEE18L13	Project Phase – II	8	0	0/0	12/12	L

**Credits Sub Total: 18** 

Subject Code: BEE18TS1			ct Name		CHNIC	CAL	SKIL	L 1 (C	omput	er	T /L/ ETL	L	T / S.Lr	P/R	C
DELIGIOI		Prerec	quisite:	-							ETL		0/0	3/0	) 1
L : Lecture T	` : T	utorial	SLr:	Superv	vised L	Lear	ning P	: Proje	ct R: F	Researc	h C: Cre	edits			
T/L/ETL: T	heor	y/Lab/	Embed	ded Th	eory a	nd L	_ab								
<b>OBJECTIV</b>															
			tive is t			ne te	echnica	al skill	of the	studen	ts				
COURSE O															
CO1			op the												
CO2		_	e the ga etency (	-			skill re	quirem	ents of	f the er	nployeı	or in	dustry	y and	the
CO3		Enhan	ce the	emplo	yabili	ty o	f the s	tudents	S.						
Mapping of	Cot	Enhance the employability of the students.  urse Outcomes with Program Outcomes (POs)													
COs/POs		PO1	PO2	PO3	PO4	4	PO5	PO6	PO7	PO8	PO9	PO1	0 PC	)11	PO12
CO1		H	H	Н	Н		Н	Н	M	M	H	M		H	M
CO2		H	H	M	H		H	Н	M	M	H	Н		H	Н
CO3		Н	H	Н	Н		Н	Н	M	M	H	Н		H	Н
Cos / PSOs		PS	01	P	SO2		PS	O3	PS	O4	PS	O5			
CO1		H	I		Н		I	I	I	H	]	H			
CO2		I	I		H		I	Η	I	I	]	H			
CO3		I	I		H		I	I	I	H	]	H			
CO4		F	I		H		I	I	I	I	]	H			
H/M/L indic	ates	Streng	th of Co	orrelati	on H	I- H	igh, M	- Mediu	ım, L-L	ow			·		
Category	Basic Sciences Engineering Sciences Humanities and Social Sciences Program Core Program Electives Open Electives						Practical / Project	Internships / Technical Skill	Soft Skills						
								>							

Subject Code: BEN18SK1			ct Name dence B			KILL	-I (	Career	&		T /L/ ETL	L	T / S.Lr	P/ R	С
DEMIOSKI	-	Prerec	quisite:	_							ETL	0	0/0	3/0	1
L : Lecture			_		vised	Lear	ning P	· Proje	ct R·l	Researc		Ŭ	0/0	5/0	_
T/L/ETL: T								. 110je	Ct IX.1	<i>cocarc</i>	n e. en	arts			
OBJECTIV		<u> </u>													
		reate a	warene	ss in st	udent	s, var	rious to	p com	oanies h	elping	them im	prove	their sl	kill set	t
			ding to							1 0		1			
•	To h	elp stu	dents b	e awar	e of v	ariou	s techn	niques o	f candi	date rec	ruitmen	t and	help the	em pre	epare
	CV's	and r	esume.												
•	To h	elp stu	dent ho	w to fa	ice va	rious	types	of inter	view, p	reparing	g for HF	R, tech	mical ir	itervie	ws.
		•		•	their	verb	al read	ing, na	ration a	and pres	sentatio	ı skill	s by pe	rforms	8
			ck sessi												
COURSE C															
CO1											in skills				
CO2								ment te	chniqu	es like a	group di	scuss	ion, int	erview	s and
			e to prep												
CO3	]	Prepar	e for di	fferent	types	of in	nterviev	ws and	be prep	ared for	· HR and	d tech	nical in	tervie	ws.
	]	Improv	ve their	verbal	, writt	ten ar	nd othe	r skills	by perf	orming	mock s	ession	ıs.		
Mapping of	Cou	rse O	utcome	s with	Prog	ram	Outco	mes (P	Os)						
COs/POs		PO1	PO2	PO3	PO										
CO1	_					/ <del>+</del>	PUS	PO6	<b>PO7</b>	PO8	PO9	PO ₁	0 PO	11	PO12
COI		L	L	L	_	L	PO5 L	PO6 M	PO7 M	PO8 H	PO9 M	PO1 H	0 PO		PO12 H
				L	I	L		M	M	Н	M	Н	N	1	H
CO2		L	L		] ]		L	1					N N	1	
CO2 CO3		L L	L L L	L L L	]	և և և	L L L	M M M	M M M	H H H	M M M	H H H	N N	1 1 1	H H H
CO2 CO3 CO4		L L L	L L L	L L L L		L L	L L L	M M M M	M M M M	H H H	M M M	H H H	N N	1 1 1	H H
CO2 CO3 CO4 Cos/PSOs		L L L PSo	L L L L	L L L L	1   1   1   2   SO2	և և և	L L L L PS	M M M M	M M M M	H H H H	M M M M	H H H H SO5	N N	1 1 1	H H H
CO2 CO3 CO4 Cos / PSOs CO1		L L L PSo	L L L L	L L L L		և և և	L L L PS	M M M M O3	M M M M	H H H	M M M M	H H H SO5	N N	1 1 1	H H H
CO2 CO3 CO4 Cos/PSOs		L L L PSo	L L L L	L L L L	1   1   1   2   SO2   L	և և և	L L L PS	M M M M	M M M M PS	H H H H O4	M M M M	H H H H SO5	N N	1 1 1	H H H
CO2 CO3 CO4 Cos/PSOs CO1 CO2		L L L PSo	L L L D1	L L L L		և և և	L L L PS	M M M M O3	M M M PS	H H H O4	M M M M	H H H SO5 L	N N	1 1 1	H H H
CO2 CO3 CO4 Cos / PSOs CO1 CO2 CO3	ates	L L L PSO I I	L L L O1	L L L P	1   1   1   1   1   1   1   1   1   1	L L L	L L L PS	M M M M O3	M M M M PS	H H H OO4	M M M M	H H H GO5 L L	N N	1 1 1	H H H
CO2 CO3 CO4 Cos / PSOs CO1 CO2 CO3 CO4	ates	L L L PSo I I Streng	L L L CO1	L L L P	1   1   1   1   1   1   1   1   1   1	L L L	L L L PS	M M M O3 H H H	M M M M PS	H H H OO4	M M M M	H H H GO5 L L	N N	1 1 1	H H H
CO2 CO3 CO4 Cos / PSOs CO1 CO2 CO3 CO4	ates	L L L PSo I I Streng	L L L O1	L L L P	SO2 L L L L	L L L	L L L PS I I I I I I I I I I I I I I I I I I	M M M O3 H H H	M M M M PS	H H H OO4	M M M M	H H H GO5 L L	N N	1 1 1	H H H
CO2 CO3 CO4 Cos / PSOs CO1 CO2 CO3 CO4		L L L PSo I I Streng	L L L O1	L L L P	SO2 L L L L	L L L L	L L L PS I I I I I I I I I I I I I I I I I I	M M M O3 H H H	M M M M PS	H H H OO4	M M M M	H H H GO5 L L	N N	1 1 1	H H H
CO2 CO3 CO4 Cos / PSOs CO1 CO2 CO3 CO4 H/M/L indic		L L L PSo I I Streng	L L L O1	L L L P	SO2 L L L L	L L L L	L L L PS I I I I I I I I I I I I I I I I I I	M M M O3 H H H	M M M M PS	H H H OO4	M M M M	H H H GO5 L L	N N	1 1 1	H H H
CO2 CO3 CO4 Cos / PSOs CO1 CO2 CO3 CO4 H/M/L indic		L L L PSo I I Streng	L L L O1	L L L P	SO2 L L L L	L L L L	L L L PS I I I I I I I I I I I I I I I I I I	M M M O3 H H H	M M M M PS	H H H OO4	M M M M	H H H GO5 L L	N N	1 1 1	H H H
CO2 CO3 CO4 Cos / PSOs CO1 CO2 CO3 CO4	Basic Sciences	L L L PSO I I	L L L O1	L L L P	1   1   1   1   1   1   1   1   1   1	L L L	L L L PS	M M M M O3 H H	M M M M PS	H H H OO4	M M M M	H H H GO5 L L	N N	1 1 1	H H H

0 0/0

3/0 1

#### **UNIT I**

BEN18SK1

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**  $\mathbf{V}$ 

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

Practical component P: Include case studies / application scenarios

Research component R: Future trends / research areas / Comparative Analysis

Total No. of Periods: 30

Subject Code: BEE18TS2	1		ct Name are Pack		HNIC	CAL	SKIL	L 2 (Ele	ctrical		T /L/ ETL	L	T / S.Lr	P/R	С
		Prerec	quisite:								L	0	0/0	3/0	1
L : Lecture	T : T	utoria	l SLr:	Superv	ised	Lear	ning I	P : Projec	et R:R	esearcl	n C: Cre	dits	<u>l</u>	I .	<u> </u>
T/L/ETL: T	Theo	ry/Lab	/Embed	ded The	eory a	and I	Lab								
OBJECTIV															
The objecti	ive i	is to de	evelop t	he tecl	nnica	l ski	ill of t	he stude	ents.						
COURSE (	DUT	COM	ES (Cos	s): (3-5)	)										
CO1								ed in the							
CO2		Bridge	e the ga	p betw	een t	he em	ployer	or ind	lustry	and th	ne				
		compe	etency o	of the s	tudei	nts.									
CO3	,	Enhance the employability of the students.													
Mapping of	f Co	urse C	Outcome	s with	Prog	ram	Outco		Os)						
COs/POs	]	PO1	PO2	PO3	PO	4	PO5	PO6	PO7	PO8	PO9	PO1	0 PO	11	PO12
CO1		Н	H	Н	Н	[	Н	Н	M	M	Н	M	I	I	M
CO2		Н	Н	M	Н	[	Н	Н	M	M	Н	Н	I	I	Н
CO3		Н	Η	Н	Н	[	Н	Н	M	M	Н	Н	I	I	Н
Cos / PSOs		PS	<b>O</b> 1	PS	<b>SO2</b>		PS	803	PS	<b>O4</b>	PS	<b>SO5</b>			
CO1		ŀ	H		Н			Н	I	Н		Н			
CO2		ŀ	H		Н			Н	I	Н		Н			
CO3		I	H		H			H	I	H	]	H			
H/M/L indic	cates	Streng		orrelati	on l	H- H	igh, M	I- Mediu	m, L-Lo	)W					
Category	Basic Sciences	Engineering Sciences Humanities and Program Core Program Electives Open Electives Practical / Project Internships / Technical Skills Soft Skills													
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Subject Code: BEN18SK2			ct Name itative			KILI	-II (Ç	Qualitat	tive and	l	T /L/ ETL	L	T / S.Lr	P/ R	С
		Prerec	quisite:	BSK1	1 <b>8ET</b>	1					ETL	0	0/0	3/0	1
L : Lecture T	: T	utorial	SLr:	Super	vised	Lear	ning P	: Proje	ct R:l	Researc	h C: Cre	edits			l
T/L/ETL: Th		ry/Lab/	Embed	ded Th	neory	and I	Lab								
OBJECTIV	Ε:														
									reason						
			•			•			tic reas	_					
						ove t	heir dat	ta interp	pretation	n skills					
COURSE O															
CO1			e studer												
CO2		Prepare	e studer	its for	arithi	netic	reason	ing							
CO3		Prepare	e studer	nts for	data	inter	pretatio	on skills	S						
Mapping of	Co	urse O	utcome	s with	Prog	ram	Outco	mes (P	Os)						
COs/POs		PO1	PO2	PO3	PC	)4	PO5	PO6	PO7	PO8	PO9	PO1	PO	11	PO12
CO1		L	L	L	L		L	M	M	Н	M	H	M		H
CO2		L	L	L	L		L	M	M	Н	M	H	M		H
CO3		L	L	L	L		L	M	M	H	M	H	M		H
Cos / PSOs		PS	01	F	PSO2		PS	SO3	PS	O4	PS	SO5			
CO1		L	1		L		]	H	]	L		L			
CO2		L			L			H		L		L			
CO3		I	_		L			H	_	L	]	L			
H/M/L indica	tes	Streng		orrelat	ion	H- H	ligh, M		ım, L-L	ow				1	
Category	Basic Sciences	Engineering Sciences	Humanities and Social Sciences	Program Core	Program Electives	Open Electives	Practical / Project	Internships / Technical Skill	Soft Skills						
			^												

## BEN18SK2 SOFT SKILL –II (Qualitative and Quantitative Skills) 0 0/0 3/0 1

### UNIT I LOGICAL REASONING I

6

Logical Statements – Arguments – Assumptions – Courses of Action.

#### UNIT II LOGICAL REASONING II

6

Logical conclusions – Deriving conclusions from passages – Theme detection.

## UNIT III ARITHMETICAL REASONING I

6

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

# UNIT IV ARITHMETICAL REASONING II

6

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

## UNIT V DATA INTERPRETATION

6

Tabulation – Bar graphs – Pie graphs – Line graphs.

Total No. of Periods: 30

#### **REFERENCE BOOKS:**

- 1. R.S.Agarwal, A modern approach to Logical Reasoning, S.Chand & Co., (2017).
- 2. R.S.Agarwal, A modern approach to Verbal and Non verbal Reasoning, S.Chand & Co., (2017).
- 3. R.S. Agarwal, Quantitative Aptitude for Competitive Examinations, S. Chand & 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: BEE18L09			et Name NING/						IT		T /L/ ETL	L	T / S.Lr	P/ R	С
	1	Prerec	quisite:								L	0	0/0	3/0	1
L : Lecture T	` : Tu	ıtorial	SLr:	Super	vised	Lear	ning P	: Proje	ct R:I	Researc	h C: Cr	edits			I
T/L/ETL: TI		y/Lab/	Embedo	ded Th	eory	and I	Lab								
OBJECTIV															
							aining	is to pro	ovide a	short-te	erm wor	k expe	rience	in an	
			ompany			ion									
COURSE O						1 ,	1	• ,•	/		,	.1	1 .	C .	1
CO1											taining t		iomair	of stu	ıay.
CO2		To acq	uıre ski	IIs and	i knov	vledg	ge for a	smooth	ı transit	ion into	the car	eer.			
CO3	7	Γο gai	n field e	experie	ence a	nd ge	et linke	d with	the prof	essiona	al netwo	rk.			
Mapping of	Cou	rse O	utcome	s with	Prog	ram	Outco	mes (P	Os)						
COs/POs	1	PO1	PO2	PO3	PC	)4	PO5	PO6	PO7	PO8	PO9	PO1	PO	11	PO12
CO1		M	L	L	]	L	L	Н	Н	Н	Н	H	]	H	Н
CO2		H	M	Н	I	H	M	Н	Н	Н	Н	H	]	H	M
CO3		Н	Н	Н	I	H	M	Н	Н	Н	Н	H	]	H	M
Cos / PSOs		PS	01	P	SO2		PS	O3	PS	SO4	PS	SO5			
CO1		F			H			H		H		H			
CO2		E			H			H		H		H			
CO3		H			H			Η	1	H	]	H			
H/M/L indica	ates !	Streng		orrelat	ion	H- H	igh, M	- Mediu	ım, L-L	ow		_		1	
Category	Basic Sciences	Engineering Sciences	Humanities and Social Sciences	Program Core	Program Electives	Open Electives	Practical / Project	Internships / Technical Skill	Soft Skills						
	<u>B</u>	可可	ΗS	<u>P</u>	P	0	√ P	Ir	<u>N</u>						

Subject Code: BEE18TS3			t Name & Imp					L 3 (Ev	aluation	n of	T /L/ ETL	L	T / S. Lr	P/R	С
		Prereq	uisite:								L	0	0/0	3/0	1
L : Lecture	T : T	Γutorial	SLr:	Superv	vised	Lear	rning l	P : Proje	ct R:R	esearch	C: Cre	dits		1	
T/L/ETL:								Ü							
OBJECTI	VE:														
The object	tive i	is to de	velop t	he tecl	hnica	al sk	ill of t	he stude	ents.						
COURSE	OUT	COMI	ES (Cos	3): (3-5)	)										
CO1		Develo	p the t	echnic	al sk	ills	require	e field o	of study	7					
CO2		Bridge	the ga	p betw	een	the s	skill re	ents of	the em	ployer	or indu	ıstry	and t	he	
		compe	tency o	of the s	tude	nts.						_			
CO3		Enhan	ce the e	employ	abili	ity o	f the s	•							
Mapping o	of Co	urse O	utcome	s with	Prog	gram	Outco	omes (P	Os)						
COs/POs		PO1	PO2	PO3	PO	4	PO5	PO6	PO7	PO8	PO9	PO10	PC	)11	PO12
CO1		Н	Н	Н	ŀ	I	Н	Н	M	M	Н	M	I	Η	M
CO2		Н	Н	M	I	I	Н	Н	M	M	Н	Н	I	Η	Н
CO3		Н	Н	Н	I	I	Н	Н	M	M	Н	Н	I	Η	Н
Cos / PSOs	S	PS	01	P	SO2		P	SO3	PS	O4	PS	SO5			
CO1		H	I		Н			Н	]	Н		Н			
CO2		F	I		Н			Н	]	Н		Н			
CO3		F	I		Н			Н	]	Н		Н			
H/M/L indi	cates	Streng	th of C	orrelati	on	H- H	Iigh, M	I- Mediu	m, L-Lo	OW				•	
Category	Basic Sciences	ves					Practical / Project	Internships / Technical Skill	Soft Skills						
							>								

Subject Code:		Subject Name: PROJECT PHASE -I											T / S.Lr	P/ R	С
BEE18L12	-	Prerec	uisite:								ETL L	0	0/0	3/3	2
I · Lecture 7		·		Super	Supervised Learning P: Project R: Research										
T/L/ETL: T							_	. 1 10jc	Ct IX.I	CSCarc	ii C. Ci	ans			
OBJECTIV		j i Zuor			001)										
> The	obje	ective o	of the M	Iain Pr	oject	is to	culmir	ate the	acaden	nic stud	ly and p	rovide	e an op	portur	nity to
											esearch				
											thesize				
											ct affirı				
	_					tıma	l soluti	on, mak	te ethica	al decis	ions and	i to pr	esent e	tectiv	ely.
COURSE O						olzi11.	c oogni:	rad in t	20 201111	o of st	ıdy addı	nacina	x 0. 0p.00	ifia	
COI			m or iss		e and	SKIII	s acqui	ieu iii u	ne cours	se or su	idy addi	essing	g a spec	inc	
CO2		1			ts to t	hink	critica	lly and	creative	ly ahoi	ıt societ	al issu	es and	devel	on
50 <b>2</b>			iendly a					iij and	-1 -411 1	, 4000	500100	1000	and	30 (01)	~P
CO3								ate the	ir profic	iency i	n comm	unicat	ion ski	lls.	
CO4		To take	e on the	challe	nges	of te	amwor	k nrens	are a nre	sentati	on and o	lemon	strate t	he inn	ate
CO4		talents		Ciluiic	nges	01 101	ulli w Ol	k, prope	ne a pre	Scritati	on and c	icinon	strate t	110 11111	acc
Mapping of				s with	Prog	ram	Outco	mes (P	Os)						
COs/POs		PO1	PO2	PO3	PO		PO5	<b>PO6</b>	PO7	PO8	PO9	PO1	0 PO	11	PO12
CO1		Н	Н	Н	I	H	M	H	Н	L	M	M	I	I	Н
CO2		Н	Н	H	I	H	Н	Н	Н	M	M	M	I	I	H
CO3		H	H	H	I	I	H	H	H	M	M	H	I	I	M
CO4		H	M	H	F	H	H	H	M	Н	H	Н	F	I	H
Cos / PSOs		PS	01	P	SO ₂		PS	O3	PS	O4	PS	O5			
CO1		H	[		H		I	H	I	I		H			
CO2		H	[	Н			Н		Н		H				
CO3	3		[		H			H	I	H		Н			
CO4		H			H			<u> </u>		I	]	H			
H/M/L indic	ates	Streng		orrelati	on	H- H	ıgh, M		ım, L-L	ow				l	
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>	enc	ing	es ciei	S	Ele	ctiv	/ P ₁	/ sd	<u>s</u>						
Category	Basic Sciences	Engineering Sciences	Humanities Social Sciences	Program Core	Program Electives	Open Electives	Practical / Project	shi	Soft Skills						
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Subject		Subjec	et Nam	e: <b>FO</b>	REIG	N L	ANGU	AGE			Т	L	Τ/	<b>P</b> /	С
Code:											/L/		S.Lr	R	
BHS18FL	X	D			ETL		0/0	2/0	1						
			quisite:								T	0	0/0	3/0	1
L : Lecture								: Proje	ct R:	Resear	ch C: Cro	edits			
T/L/ETL: 7															
OBJECTIV															
communica				oreign	langu	iage a	and inte	eract in	a cultu	rally a	ppropriat	e man	ner wit	h nati	ve
speakers of															
COURSE (	TUC														
CO1		Achieve functional proficiency in listening, speaking, reading, and writing.													
CO2		Develop an insight into the nature of language itself, the process of language and culture acquisition.										re			
CO3		Decod	e, analy	ze, an	d inte	rpret	authen	tic text	s of diff	ferent g	genres.				
Mapping of	f Co	urse O	utcome	s with	Prog	gram	Outco	mes (P	Os)						
COs/POs		PO1	PO2	PO3	PC	)4	PO5	PO6	PO7	PO8	PO9	PO1	0 PC	11	<b>PO12</b>
CO1		L	L	L	]	L	L	H	L	H	M	Н	]	H	L
CO2		M	L	L		L	L	Н	L	Н	Н	Н	]	H	L
CO3		L	L	M	ľ	M	L	Н	M	Н	M	Н	]	H	L
Cos / PSOs	;	PS	01	PSO		PS		6O3 F		SO4	PS	PSO5			
CO1		I		L		L		L			L				
CO2		I		L		L		L			L				
CO3		I	,		L		L		L			L			
H/M/L indi	cates	Streng	th of C	orrelat	ion	H- H	ligh, M	- Mediı	ım, L-I	LOW	l .		I		
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		uce	B		S			) ini							
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Category	Basic Sciences	Engineering Sciences	Humanities Social Sciences	Program Core	Program Electives	Open Electives	Practical / Project	Internships / Technical Skill	Soft Skills						
O	Ba	En	So	Pro	Pro	Ор	Pre	Inter Skill	So						
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	Subje	ct Nam	e: PRC	JECT 1	PHASE	- II			T	L	T /	P/R	C
Subject									/L/		S.Lr		
Code: BEE18L13	Duono	quisite:							ETL L	0	0/0	12/12	8
		_									0/0	12/12	O
L: Lecture T:					_	P : Proj	ect R:	Resear	ch C: C	redits			
T/L/ETL : Theo						. aulmi	noto tho	aaadar	nio atua	lrr and	marrid	2.00	
<b>OBJECTIVE:</b> opportunity to 6													tion
of a faculty me													
skills acquired													
creatively, find												,	
COURSE OUT	ГСОМІ	ES (Co	s): (3-5	)									
CO1	Apply the knowledge and skills acquired in the course of study addressing a specific												
	problem or issue.												
CO2	To encourage students to think critically and creatively about societal issues and develop												
002	user friendly and reachable solutions												
CO3	To refine research skills and demonstrate their proficiency in communication skills.												
CO4	To tak	e on the	e challe	nges of	teamwo	rk, prep	are a pi	resentat	tion and	demo	nstrate	the inna	ate
	talents												
Mapping of Co													
COs/POs	PO1	PO2	PO3	PO4	PO5	PO6	PO7	PO8	PO9	PO1			PO12
CO1	H	H	H	H	H	H	H	H	H	H		H	H
CO2	H	H	H	H	H	H	H	H	H	H	_	H	H
CO3	H	H	H	H	H	H	Н	H	H	H		H	H
CO4	Н	H	H	H	Н	H	Н	H	Н	H		H	H
Cos / PSOs	PS			SO2	PSO3 PSO4					O5			
CO1	H			<u>H</u>	H H					H			
CO2 CO3	E			<u>H</u> H	H H H					<u>I</u>			
CO4	I.			<u>H</u>	Н		H		H H				
	s Strength of Correlation H- High, M- Medium, L-Low												
			orrelati	on H-	High N	1- Med	ium L-l	Low					
	s Streng	th of C	orrelati	on H-	High, M		ium, L-	Low					
	s Streng		orrelati				ium, L-	Low					
H/M/L indicate	s Streng	th of C	orrelati				ium, L-	Low					
H/M/L indicate	s Streng	th of C					ium, L-J	Low					
H/M/L indicate	s Streng	th of C						Low					
H/M/L indicate	s Streng	th of C				nships / Technical		Low					
H/M/L indicate	s Streng	th of C				nships / Technical		Low					
	s Streng	th of C	Program Core	Program Electives uo Open Electives H	sct	Internships / Technical W Skill	Soft Skills	Low					



C. B. Palaurel

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