



**FAKULTI PENGURUSAN TEKNOLOGI DAN TEKNOUSAHAWANAN
UNIVERSITI TEKNIKAL MALAYSIA MELAKA**

TECHNOLOGY ENTREPRENEURSHIP

BTMW4012

SEMESTER II

SESI 2021/2022

1.0 LEARNING OUTCOMES

Upon completion of this subject, the student should be able to:

LO1 Apply the concept and importance of entrepreneurship to real-world situation.(C3)

LO2 Demonstrate the techniques in digital entrepreneurship practiced by entrepreneurs to market a business.(P4)

LO3 Choose suitable business ideas and processes in developing a business plan for a small business.(A3).

2.0 SYNOPSIS

The subject provides students with technological knowledge about entrepreneurship as well as the skills to turn such knowledge into practice. The teaching and learning (T&L) activities include case studies and fieldwork with the aim to inculcate entrepreneurship values and entrepreneurship acculturation with a view to successfully launch and subsequently manage their enterprises. Students will be exposed to the support systems available or government agencies in starting new ventures, including the tactics commonly employed by entrepreneurs starting a business. The subject allows students to critically evaluate the business in terms of technical feasibility, investment potential, and risks.

3.0 PRE-REQUISITE

None

3.0 REFERENCES

1. Arifin, S. & Hamidon, S. (2017). *Introduction to Entrepreneurship*. Oxford Fajar.
2. Barringer, B. R. and Ireland, R. D. (2015). *Entrepreneurship: Successfully Launching New Ventures*. 5th International Edition, Pearson.
3. Barker, Melissa S (2013). *Social media marketing : a strategic approach*. South Western, OH : Cengage. Call Number HF5415.1265 .S62 2013
4. Ariffin, S., Wahab, I. A., Hambali, Z. (2013). *Fundamentals of Entrepreneurship*. Oxford Fajar.
5. Scarborough, N. (2014). *Essentials of entrepreneurship and small business management*. Boston: Pearson.
6. UiTM Entrepreneurship Study Group. Revised Edition (2010). *Fundamentals of Entrepreneurship*. Pearson

4.0 STUDENT LEARNING TIME (SLT)

		Guided Learning Time				Independent Learning								Assessment Time				
Week	CLO	L	T	P	O	L	T	P	O	F	T	A	O	F	T	A	O	SLT
W1	1	1			1	0.5	0	0	0	0	0	0	0					2.5
W2	1	1			1	0.5	0	0	0	0	0	0	0					2.5
W3	1	1			1	0.5	0	0	0	0	0	0	0					2.5
W4	2	1			1	0.5	0	0	0	0	0	0	0					2.5
W5	2	1			1	0.5	0	0	0	0	0	0	0					2.5
W6	1	1			1	0.5	0	0	0	0	0	0	0					2.5
W7	2	1			1	0.5	0	0	0	0	0	8	0			2		12.5
W8	3	1			1	0.5	0	0	0	0	0	4	0			1		7.5
W9	3	1			1	0.5	0	0	0	0	0	24	0			6		32.5
W10	2 & 3	1			1	0.5	0	0	0	0	0	0	0			0		2.5
W11	2 & 3	0			2	0	0	0	0.25	0	0	1	0			0.25		3.5
W12	2 & 3	0			2	0	0	0	0.25	0	0	0	0					2.25
W13	2 & 3	0			2	0	0	0	0.25	0	0	0	0					2.25
W14	2 & 3	0			2	0	0	0	0.2	0	0	0	0					2.2
>W14										0	0	0	0					0
Overall		10	0	0	18	5	0	0	0.95	0	0	37	0	0	0	9.25	0	80.2
															SLT Credit Equivalent			2.005

5.0 ASSESSMENT MARKS

Assessment Type	Detail Item		Topics	Code	LO	PO	Marks	Weightage (%)	Total
Course Work	Test	MCQ	Lecture 1, Lecture 2, Lecture 4, Lecture 6, Lecture 7	MT-1	LO1	PO1	100	30	100%
	Project 1 & 2	Business Portfolio Report	Lecture 5, Lecture 8,	PR 1	LO2	PO2	100	30	
		Business Plan Report	Lecture 3 Lecture 9 Lecture 10 Lecture 11 Lecture 12	PR 2	LO3	PO3	100	30	
	Assignment 1: Business Sales	Personal Selling	Lecture 13 Lecture 14	TG 1	LO1	PO1	10	10	

6.0 WEEKLY LECTURE PLAN

Week	Contents		Remarks
1	Lecture 1 LO 1	Introduction to Entrepreneurship and Business environment <ul style="list-style-type: none"> • Concept of entrepreneurship • Entrepreneurial Process • Characteristics and attributes of entrepreneurs • Conventional Entrepreneurship vs Digital Entrepreneurship • Digital Entrepreneurship in Malaysia 	<ul style="list-style-type: none"> • Briefing BTMW content & delivery method through Online using Webex & Facebook live FPTT • Student Enroll to U-learn according to Course's Lecturer • Group selection • Discussion on Group & Individual Assignment <p>Video : https://youtu.be/-sNdIKPxi0w </p>
2	Lecture 2 LO1	Ideation and SEO <ul style="list-style-type: none"> • Idea generation and innovation • Techniques for generating business ideas • Search Engine Optimization (SEO) • Transformation of ideas into business opportunities • Business start-ups • Introduction to Go-ecommerce Platform 	<ul style="list-style-type: none"> • Online class using U-Learn • Discussion on lecture 1 topic • Student activity: <ul style="list-style-type: none"> - Identify 5 business ideas <p>Videos : https://youtu.be/3BDmykLr1iE (I-Sajadah) https://www.youtube.com/watch?v=bNpx7gpSqbY https://www.youtube.com/watch?v=QoqohmccTSc </p>
3	Lecture 3 LO3	Business Plan Models & BMC <ul style="list-style-type: none"> • Importance of Business Plan • Components of Business Plan • Business Model Canvas (BMC) 	<ul style="list-style-type: none"> • Discussion <p>Video : https://youtu.be/6JRCToNiTVQ </p>
4	Lecture 4 LO1	Formation and registration of business in Malaysia <ul style="list-style-type: none"> • Types of business entity • Ethics, Professionalism and social responsibility • Intellectual Property, trade secret, patents and copyright 	<ul style="list-style-type: none"> • Online class using U-Learn • Discussion on lecture 2 topic • Student activity <ul style="list-style-type: none"> - Select 1 business entity & justify • Video : https://youtu.be/6JRCToNiTVQ

5	Lecture 5 LO2	Marketing Planning for Business Start ups - Part 1 <ul style="list-style-type: none"> Marketing concept Marketing segment, target customers and positioning Marketing plan Marketing Mix 	<ul style="list-style-type: none"> Online class using U-Learn Discussion on lecture 3 topic Student activity - Identify marketing mix for group selected product <p>Video : https://youtu.be/nJ4uCOJjDF8</p>
6	Lecture 6 LO2	Marketing Planning for Business Start ups – Part 2 <ul style="list-style-type: none"> Social media in marketing <ul style="list-style-type: none"> Facebook for business Instagram for business Google Ads Marketing budget 	<ul style="list-style-type: none"> Online class using U-Learn Discussion on lecture 4 topic Student activity - Develop social media platform (Insta) <p>Video : https://www.youtube.com/watch?v=Yyq4X71H5Fw</p>
7	Lecture 7 LO1	Organizational management for business start-ups <ul style="list-style-type: none"> Organizational mission, vision, and objectives Organizational structure Human resource management Organizational financial planning 	<ul style="list-style-type: none"> Online class using U-Learn Discussion on lecture topic Student activity - Develop organizational structure <p>Video: https://youtu.be/ESU62zsvq8I</p> <p><u>SUBMISSION:</u></p> <p><u>22/04/2022 (Friday) Before 5 pm</u></p> <ul style="list-style-type: none"> Business Sales Report (10 Marks)
8	Lecture 8 LO2	Project Management for Digital Entrepreneurship <ul style="list-style-type: none"> Website development Marketplace Payment gateway 	<ul style="list-style-type: none"> Online class using U-Learn Discussion on lecture 6 topic Student activity - Demonstration using Lazada/Shopee <p>Video : https://www.youtube.com/watch?v=w9j3-ghRjBs</p>
	Mid Term Break (30 April – 8 May 2022)		

9	Lecture 9 LO3	Operational Management for Business Start ups <ul style="list-style-type: none"> • Location planning • Process design, sourcing and layout • Production planning and capacity management • Operational budget 	<ul style="list-style-type: none"> • Continuous assessment- Mid Term Test (30 Marks) • Online class using U-Learn • Discussion on lecture 7 topic • Student activity <ul style="list-style-type: none"> - Prepare process design for group selected product <p><u>ASSESSMENT:</u></p> <ul style="list-style-type: none"> • Mid Term Exam (20 Marks) • Group 1 (11/05/2022- Wednesday) • Group 2 (12/05/2022- Thursday)
10	Lecture 10 LO3	Financial Planning for Business start-ups <ul style="list-style-type: none"> • Individual financial planning • Cash flow • Profit and lost • Balance sheets 	<ul style="list-style-type: none"> • Online class using U-Learn • Discussion on lecture 8 topic • Student activity <ul style="list-style-type: none"> - Prepare Pro-forma Cash flow, Income statement & Balance Sheet <p><u>SUBMISSION:</u></p> <p><u>20/05/2022 (Friday) Before 5 pm</u></p> <ul style="list-style-type: none"> • Business Portfolio Submission (30 Marks) •
11	Lecture 11 LO3	One to One Group Consultation with Lecturer Part 1 <ul style="list-style-type: none"> • Business Plan Assessment • Business Portfolio Assessment • Business Sales Assessment 	<ul style="list-style-type: none"> • Online Class (Synchronous Lecture) <p><u>SUBMISSION:</u></p> <p><u>27/05/2022 (Friday) Before 5 pm</u></p> <ul style="list-style-type: none"> • Business Plan Submission (30 Marks)
12	Lecture 12 LO1	One to One Group Consultation with Lecturer Part 2 <ul style="list-style-type: none"> • Business Plan Assessment • Business Portfolio Assessment • Business Sales Assessment 	<ul style="list-style-type: none"> • Online Class (Synchronous Lecture)

13	Lecture 13 LO2	One to One Group Consultation with Lecturer Part 3 <ul style="list-style-type: none"> • Business Plan Assessment • Business Portfolio Assessment • Business Sales Assessment 	<ul style="list-style-type: none"> • Online Class (Synchronous Lecture)
14	Lecture 14 LO2	Reflection <ul style="list-style-type: none"> • Leading ventures to success • Reflections & Closure 	<ul style="list-style-type: none"> • Online Class (Synchronous Lecture)
15		REVISION WEEK	

7.0 STAFF

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		4 BMCG (DES3&S4)	FKM	60	
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		3 BENG (S1&S2)	FKEKK	30	

APPROVAL OF TEACHING PLAN

Prepared by:

Approved by:

.....

.....

Name :

Dean/DD (Academic /HOD

Official stamp:

Official stamp:

Date :

Date:

VERIFICATION ON THE IMPLEMENTATION OF TEACHING PLAN (MID SEMESTER BREAK)

Comments:

Reviewed by:

.....

Dean/DD (Academic) /HOD

Official stamp:

Date:

VERIFICATION ON THE IMPLEMENTATION OF TEACHING PLAN (WEEK 16)

Comments:

Reviewed by:

.....

Dean/DD (Academic) /HOD

Official stamp:

Date:

LEARNING OUTCOMES VS PROGRAM OUTCOMES (FPTT) – BTEC, BTMM, BTMI, BTMS

No	Learning Outcomes	PO1	PO2	PO3	Delivery	Assessment
1	Apply the concept and importance of entrepreneurship to real world situation. (C3)	x			Lecture	Individual Sales Assignment & Test
2	Demonstrate the techniques in digital entrepreneurship practiced by entrepreneurs to market a business (P4)		x		Lecture	Portfolio Project & Presentation
3	Choose suitable business idea and process in developing a business plan for small business (A3).			x	Lecture	Business Plan Project

**PROGRAM
OUTCOME:**

BTEC- Technopreneurship

BTMM - High Tech Marketing

BTMI - Technology Innovation

PO1	To acquire technopreneurship knowledge	To acquire high technology marketing knowledge	To acquire technology innovation knowledge
PO2	To be able to identify, analyze problems and make appropriate decisions in technopreneurship	To be able to identify, analyze problems and make appropriate decisions in high technology marketing	To be able to identify, analyze problems and make appropriate decisions in technology innovation
PO3	To foster the ability to apply and practice management and technology skills	To foster the ability to apply and practice management and technology skills	To foster the ability to apply and practice management and technology skills
PO4	To have the ability to communicate effectively with all entrepreneurial stakeholders	To have the ability to communicate effectively throughout the marketing supply chain	To have the ability to communicate effectively within current innovation trend
PO5	To instill social responsibility as an individual or as a group	To instill social responsibility as an individual or as a group	To instill social responsibility as an individual or as a group
PO6	To acknowledge the needs of lifelong learning in technopreneurship	To acknowledge the needs of lifelong learning in high technology marketing	To acknowledge the needs of lifelong learning in technology innovation
PO7	To nurture the development of effective technopreneur or workers for technopreneurial sector	To develop skilled workers with enterprising culture.	To develop skilled workers with enterprising culture.
PO8	To practice the knowledge learned professionally and ethically	To practice the knowledge learned professionally and ethically	To practice the knowledge learned professionally and ethically
PO9	To nurture the development of effective leaders with high integrity in technopreneurial sector	To nurture the development of effective leaders with high integrity in high technology marketing	To nurture the development of effective leaders with high integrity in technology innovation

LEARNING OUTCOMES VS PROGRAM OUTCOMES (FKP) – BMCG, BMFR, BENG, BEKG, BITG, BMFS, BMFB, BFMA

No	Learning Outcomes	PO9	P11	PO12	Delivery	Assessment
1	Apply the concept and importance of entrepreneurship to real world situation. (C3)		x		Lecture	Individual Sales Assignment & Test
2	Demonstrate the techniques in digital entrepreneurship practiced by entrepreneurs to market a business (P4)	x			Lecture	Portfolio Project & Presentation
3	Choose suitable business idea and process in developing a business plan for small business (A3).			x	Lecture	Business Plan Project

PROGRAM OUTCOME:

- PO1: Able to apply knowledge of mathematics, science, engineering fundamentals and manufacturing engineering to the solution of complex engineering problems.
- PO2: Able to identify, formulate, research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- PO3: Able to design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
- PO4: Able to conduct investigation into complex problems using research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.
- PO5: Able to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations.
- PO6: Able to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice
- PO7: Able to apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice.
- PO8: Able to understand the impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.
- PO9: Able to communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- PO10: Able to demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

- PO11: Able to recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change and acquire knowledge on entrepreneurship
- PO12: Able to demonstrate knowledge and understanding of the principles of finance and project management

LEARNING OUTCOMES VS PROGRAM OUTCOMES (FTMK) – BITS, BITD, BITM, BITC, BITI, BITZ, BITE

No	Learning Outcomes		PO9	PO9	Delivery	Assessment
1	Apply the concept and importance of entrepreneurship to real world situation. (C3)			x	Lecture	Individual Sales Assignment & Test
2	Demonstrate the techniques in digital entrepreneurship practiced by entrepreneurs to market a business (P4)		x		Lecture	Portfolio Project & Presentation
3	Choose suitable business idea and process in developing a business plan for small business (A3).		x		Lecture	Business Plan Project

PROGRAM OUTCOME:

- PO1: Able to acquire and apply knowledge in computer science and information technology.
- PO2: Able to analyze, design and develop ICT applications.
- PO3: Can use artificial intelligence techniques such as search techniques, fuzzy logic, neural networks, evolutionary computing, machine learning, and intelligent agents when developing a system.
- PO4: Equipped with skills to develop systems individually or in groups based on artificial intelligence such as smart systems, expert systems, intelligent agent systems and robot systems.
- PO5: Able to conduct research in related fields and based on artificial intelligence.
- PO6: Able to think creatively and critically in problem solving and communicate effectively to convey ideas.
- PO7: Able to contribute skills individually or as a group to different disciplines and domains.
- PO8: Able to demonstrate good personal, ethical, leadership and entrepreneurial skills.
- PO9: Able to carry out his own learning continuously to gain knowledge and skills.

LEARNING OUTCOMES VS PROGRAM OUTCOMES (FTKEE) – BEEI, BEEA, BEEY, BEET, BEEE,BEEC,BEEZ

No	Learning Outcomes	PO2	PO5	PO10	Delivery	Assessment
1	Apply the concept and importance of entrepreneurship to real world situation. (C3)	x			Lecture	Individual Sales Assignment & Test
2	Demonstrate the techniques in digital entrepreneurship practiced by entrepreneurs to market a business (P4)		x		Lecture	Portfolio Project & Presentation
3	Choose suitable business idea and process in developing a business plan for small business (A3).			x	Lecture	Business Plan Project

PROGRAM OUTCOME

- PO1: Apply knowledge of mathematics, natural science, engineering fundamentals and an engineering specialization to the solution of complex electrical and electronics engineering problems.
- PO2: Identify, formulate, conduct research literature and analyze complex electrical and electronics engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences
- PO3: Design solutions for complex electrical and electronics engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental considerations.
- PO4: Conduct investigation of complex electronics/electrical engineering problems using research-based knowledge and research methods including design of experiments, analysis, and interpretation of data, synthesis of information to provide valid conclusions
- PO5: Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering problems, with an understanding of the limitations
- PO6: Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice and solutions to complex engineering problems.
- PO7: Understand and evaluate the sustainability and impact of professional engineering work in the solutions of complex engineering problems in societal and environmental contexts.
- PO8: Apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice..
- PO9: Function effectively as an individual, and as a member or leader in diverse teams and in multidisciplinary settings.
- PO10: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions..
- PO11: Demonstrate knowledge and understanding of engineering management principles and economic decision-making and apply these to one's own work, as a member and leader in a team, to manage projects in multidisciplinary environments.
- PO12: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

LEARNING OUTCOMES VS PROGRAM OUTCOMES (FTKMP) BMMA, BMMH, BMMM, BMMV

No	Learning Outcomes	PO2	PO5	PO10	Delivery	Assessment
1	Apply the concept and importance of entrepreneurship to real world situation. (C3)		x		Lecture	Individual Sales Assignment & Test
2	Demonstrate the techniques in digital entrepreneurship practiced by entrepreneurs to market a business (P4)	x			Lecture	Portfolio Project & Presentation
3	Choose suitable business idea and process in developing a business plan for small business (A3).			x	Lecture	Business Plan Project

PROGRAM OUTCOME:

- PO1: Ability to apply knowledge of mathematics, science, engineering fundamentals and engineering specialisation principles to defined and applied engineering procedures, processes, systems or methodologies in the field of mechanical engineering technology.
- PO2: Ability to solve broadly-defined engineering problems systematically to reach substantiated conclusions, using tools and techniques appropriate to mechanical engineering technology
- PO3: Ability to design solutions for broadly-defined engineering technology problems, and to design systems, components or processes to meet specified needs with appropriate consideration for public health and safety, as well as cultural, societal, environmental and sustainability
- PO4: Ability to plan and conduct experimental investigations of broadly-defined problems, using data from relevant sources
- PO5: Ability to select and apply appropriate techniques, resources and modern engineering tools, with an understanding of their limitations
- PO6: Ability to function effectively as individuals, and as members or leaders in diverse technical teams
- PO7: Ability to communicate effectively with the engineering community and society at large
- PO8: Ability to demonstrate an awareness of and consideration for societal, health, safety, legal and cultural issues and their consequent responsibilities.
- PO9: Ability to demonstrate an understanding of professional ethics, responsibilities and norms of engineering technology practices.
- PO10: Ability to demonstrate an awareness of management, business practices and entrepreneurship.
- PO11: Ability to demonstrate an understanding of the impact of engineering practices, taking into account the need for sustainable development.
- PO12: Ability to recognise the need for professional development and to engage in independent and lifelong learning.

LEARNING OUTCOMES VS PROGRAM OUTCOMES (FKE) BEKG, BEKM						
No	Learning Outcomes	PO9	PO11	PO12	Delivery	Assessment
1	Apply the concept and importance of entrepreneurship to real world situation. (C3)		x		Lecture	Individual Sales Assignment & Test
2	Demonstrate the techniques in digital entrepreneurship practiced by entrepreneurs to market a business (P4)	x			Lecture	Portfolio Project & Presentation
3	Choose suitable business idea and process in developing a business plan for small business (A3).			x	Lecture	Business Plan Project

PROGRAM OUTCOME:

1. Ability to apply knowledge of mathematics, science, engineering fundamentals and an electrical/mechatronics engineering to the solution of complex electrical and related engineering problem. (K,A)
2. Ability to identify, formulate, research literature and analyse complex electrical/mechatronics engineering problems reaching substantiated conclusion. (K,S,A)
3. Ability to design solutions for complex electrical/mechatronics engineering problems and design systems or components or processes that meet requirement with appropriate consideration for public health and safety, cultural, societal, and environmental. (K,S,A)
4. Ability to conduct investigation into complex electrical/mechatronics engineering problems using research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions. (K,S,A)
5. Ability to create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modelling, to complex engineering activities, with an understanding of the limitations. (K,S)
6. Ability to apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice. (K,A)
7. Ability to demonstrate the understanding for impact of professional engineering solutions in societal and environmental contexts and demonstrate knowledge and need for sustainable development. (K,A)
8. Ability to apply ethical principles and commit to professional ethics and responsibilities and norms of engineering practice. (K,A)
9. Communicate effectively on complex engineering activities with the engineering community and with society at large through presentation or technical writing. (S,A)
10. Ability to function effectively either as a member or a leader in a team and in multi- disciplinary environment. (S,A)
11. Ability to recognise the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change. (K,A)
12. Ability to demonstrate knowledge and understanding of engineering economics, management principles and entrepreneurship skills as applied in the electrical engineering profession. (K,A)

LEARNING OUTCOMES VS PROGRAM OUTCOMES (FKEKK) BENG,						
No	Learning Outcomes	PO6	PO11	PO12	Delivery	Assessment
1	Apply the concept and importance of entrepreneurship to real world situation. (C3)	x			Lecture	Individual Sales Assignment & Test
2	Demonstrate the techniques in digital entrepreneurship practiced by entrepreneurs to market a business (P4)		x		Lecture	Portfolio Project & Presentation
3	Choose suitable business idea and process in developing a business plan for small business (A3).			x	Lecture	Business Plan Project

PROGRAM OUTCOME:

- PO1: Apply knowledge of mathematics, science, engineering and electronics fundamentals to solve complex engineering problems.
- PO2: Identify, formulate, research literature and analyse complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences and engineering sciences.
- PO3: Design solutions for complex engineering problems and design systems, components or processes that meet specified needs with appropriate consideration for public health and safety, cultural, societal, and environmental consideration.
- PO4: Conduct investigation into complex problems using research based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of information to provide valid conclusions.
- PO5: Create, select and apply appropriate techniques, resources, and modern engineering and IT tools, including prediction and modeling, to complex engineering activities, with an understanding of the limitations.
- PO6: Apply reasoning informed by contextual knowledge to assess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to professional engineering practice.
- PO7: Understand the impact of professional engineering solution in societal and environmental contexts and demonstrate knowledge of and need for sustainable development.
- PO8: Apply ethical principles and commit to professional ethics, responsibilities and norms of engineering practice.
- PO9: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.
- PO10: Function effectively as an individual, and as a member or leader in diverse teams and in multi-disciplinary settings.
- PO11: Recognize the needs for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.
- PO12: Demonstrate knowledge and understanding of engineering and management principles and apply these to one's own work, as a member and leader in a team, to manage projects and in multidisciplinary environments.

LEARNING OUTCOMES VS LEARNING TAXONOMY																		
NO	Learning Outcomes	COGNITIVE						PSYCHOMOTOR						AFFECTIVE				
		C1	C2	C3	C4	C5	C6	P1	P2	P3	P4	P5	P6	A1	A2	A3	A4	A5
1	Apply the concept and importance of entrepreneurship to real world situation. (C3)			X														
2	Demonstrate the techniques in digital entrepreneurship practiced by entrepreneurs to market a business (P2)								X									
3	Choose suitable business idea and process in developing a business plan for small business (A3).															X		

COGNITIVE					
C1: Knowledge	C2: Comprehension	C3: Application	C4: Analysis	C5: Synthesis	C6: Evaluation

PSYCHOMOTOR						
P1: Perception	P2: Set	P3: Guided Response	P4: Mechanism	P5: Complex Overt Response	P6: Adaptation	P7: Origination

AFFECTIVE				
A1: Receiving	A2: Responding	A3: Valuing	A4: Organizing	A5: Internalising values

LEARNING OUTCOMES VS SOFT SKILLS																												
No	Learning Outcomes	CS					CTPS					EM			ES			LL			LS		TS					
		1	2	3	4	5	1	2	3	4	5	1	2	3	1	2	3	1	2	3	1	2	3	1	2	3	4	5
1	Apply the concept and importance of entrepreneurship toreal world situation. (C3)							x																				
2	Demonstrate the techniques in digital entrepreneurship practiced by entrepreneurs to market a business (P4)															x												
3	Choose suitable business idea and process in developing a business plan for small business (A3).																				x							

1. Communication skill (CS)	KI 1
2. Critical thinking and problem solving skill (CTPS)	KI 2
3. Teamwork skill (TS)	KI 3
4. Life long learning and information management (LL)	KI 4
5. Entrepreneurial skill (ES)	KI 5
6. Ethic and moral (EM)	KI 6
7. Leadership skill (LS)	KI 7

