SCHEME OF STUDIES **BIOMEDICAL ENGINEERING**

							BIOMEDICAL ENGINEERING					B							
	Batch 2012-13		Batch 2013-14			Batch 2014-15			Batch 2015-16			Batch 2016-17			Batch 2017		/	Batch 2018	
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		4 0 4	MT-100 Introduction to Mathematics (for		MT-100 In	roduction to Mathematics (for pre-medical students)	NC NC	MT-100	 Introduction to Mathematics (for pre-medical studer 	nts) NC	MT-100	Introduction to Mathematics (for pre-medical students)	NC NC	M	Γ-100 Introduction to Mathematics (for pre-medical students)	NC NC	*MT-100		4 0 4
		3 1 4	BM-100 Introduction to Biology (for pre-e	ngineering students)	BM-100 In	roduction to Biology (for pre-engineering students)		BM-100	Introduction to Biology (for pre-engineering students			Introduction to Biology (for pre-engineering students)			M-100 Introduction to Biology (for pre-engineering students)		*BM-12/	20 Introduction to Biology	4 0 4 3 1 4 1 0 1 2 1 3 2 0 2 1 1 3 2 0 2 1 1 1 2 3 0 3 3 1 4 3 1 4 2 1 3 2 0 2 1 1 1 2 3 0 2 1 1 3 2 0 2
	BM-101 Introduction to Biomedical Engg	0 0 0 3 1 4 2 1 3 2 1 3	BM-101 Introduction to Biomedical Engg	1 0 1	BM-101 In	roduction to Biomedical Engg	1 0 1	BM-101	1 Introduction to Biomedical Engg	1 0 1	BM-101	Introduction to Biomedical Engg	1 0 1	FALL B	M-101 Introduction to Biomedical Engg	1 0 1	FALL BM-101		1 0 1
SPRING	BM-106 Chemistry	3 1 4 S	PRING CY-106 Chemistry	3 1 4	SPRING CY-106 C	nemistry	3 1 4	SPRING CY-106	6 Chemistry	3 1 4	SPRING CY-106	Chemistry	3 1 4	4-40 C	Y-106 Chemistry	3 1 4	*CY-110	10 Applied Chemistry for Engineers	2 1 3
SPRING	BM-109 Physiology-I	2 1 3	PH-126 Physics	3 1 4	PH-126 P	nysics	3 1 4 3 0 3	PH-126	Physics Functional English	3 1 4 3 0 3	PH-126	Physics Physics	3 1 4 3 0 3 1 2 3	17-18 P	H-126 Physics	3 1 4 3 0 3	2018 *PH-127	27 Applied Physics for Engineers 11 Functional English	2 1 3
	BM-110 Anatomy-I	2 1 3	HS-102 English	3 0 3	HS-102 E	nglish	3 0 3	*HS-104	4 Functional English	3 0 3	HS-104	Functional English	3 0 3	H	S-104 Functional English	3 0 3	*HS-11	1 Functional English	2 0 2
	PH-126 Physics	3 1 4	BM-108 Computer Aided Engineering Gr	aphics 1 2 3	BM-108 C	omputer Aided Engineering Graphics	1 2 3	BM-108	Computer Aided Engineering Graphics	1 2 3	BM-108	Computer Aided Engineering Graphics	1 2 3	В	N-108 Computer Aided Engineering Graphics	1 2 3	*CS-11'	13 Introduction to Computing	1 1 2
	HS-102 English	3 0 3	BM-113 Engineering Mechanics	3 1 4	BM-113 F	ngineering Mechanics	3 1 4	BM-113	B Engineering Mechanics	3 1 4	BM-113	B Engineering Mechanics	3 1 4	В	M-113 Engineering Mechanics	3 1 4		14 Calculus	3 0 3
	BM-104 Biochemistry	3 1 4	EE-119 Fundamentals of Electrical Engir		FF-119 F	indamentals of Electrical Engineering	3 1 4	FF-110	Fundamentals of Electrical Engineering	3 1 4	FF-119	Fundamentals of Electrical Engineering	3 1 4	F	E-119 Fundamentals of Electrical Engineering	3 1 4		9 Fundamentals of Electrical Engineering	3 1 4
	BM-105 Basic Electronics	3 1 4		3 1 4	EALL BM-114 A		3 1 4		4 Anatomy	3 1 4		Anatomy	3 1 1	SPRING R	M-114 Anatomy	3 1 4		14 Anatomy	3 1 4
	BM-108 Computer Aided Engineering Graphics	2 1 3	FALL BM-114 Anatomy BM-115 Physiology	3 1 4 3 1 4 2 0 2	FALL BM-114 A BM-115 P	nyeiology	3 1 4	FALL **BM-114	5 Physiology-I	3 1 4 2 1 3 2 0 2	FALL BM-114	Physiology-I	2 1 3	2018 B	M-115 Physiology-I	2 1 3	OI 11110 DM 116	15 Physiology-I	2 1 3
FALL	BM-111 Anatomy-II	2 1 2	BM-115 Physiology HS-105 Pakistan Studies OR	2 0 2	US 105 D	skistan Studies OR	2 0 2	UC 105	5 Physiology-I 5 Pakistan Studies OR	2 0 3	US 105	Pakistan Studies OR	2 0 3	2018	S-105 Pakistan Studies OR	2 0 3			2 0 3
IALL	BM-112 Physiology-II	3 1 4 2 1 3 2 1 3 2 1 3 2 1 3 2 0 2	HC 197 Pokiston Studies (for Enraigners	2 0 2	HS 107 P	akistan Studies (for Foreigners)	3 1 4 3 1 4 2 0 2	UC 107	Pakistan Studies (for Foreigners)	2 0 2	HS 107	Pakistan Studies (for Foreigners)	3 1 4 2 1 3 2 0 2	<u>'</u>	S-127 Pakistan Studies (for Foreigners)	3 1 4 2 1 3 2 0 2	HS-103	Pakistan Studies OR Pakistan Studies (for Foreigners)	2 0 2
	HS-105 Pakistan Studies OR	2 1 3	HS-127 Pakistan Studies (for Foreigners Note:- Revised Curriculum vide Resoluti	N- CVN 474 4(-)(-)	113-127 F	ikistari Studies (tor i oreigners)		113-127	Changed via Resolution No.SYN-177.5(a)(i)		113-127	Fakistan Studies (for Foreigners)			Fakisian Studies (for Foreigners)		*PM 15	20 Computer Aided Engineering Combine	
	HS-105 Pakistan Studies On HS-127 Pakistan Studies (for Foreigners)	2 0 2	Note:- Nevised Curriculum vide Resoluti	311 NO. 3 TN-171.4(a)(V)	_				** Changed Vide AC-131st Meeting								DM-13	30 Computer Aided Engineering Graphics	1 1 2
	HS-127 Pakistan Studies (for Foreigners)								Changed vide AC-131st Meeting									* Changed Vide AC-140th Meeting	
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	Biomedical Engineering		Biomedical Engine	ering		Biomedical Engineering			Biomedical Engineering			Biomedical Engineering			Biomedical Engineering		, l	Biomedical Engineering	
	EE-119 Fundamentals of Electrical Engineering	3 1 4	BM-209 Basic Electronics	3 1 4	BM-209 B	asic Electronics	3 1 4	BM-209	Basic Electronics	3 1 4	BM-209	Basic Electronics	3 1 4	В	M-209 Basic Electronics	3 1 4	*EE-21	17 Circuit Theory	2 0 2
	CS-103 Programming Languages	1 2 3	CS-103 Programming Languages	1 2 3		ogramming Languages	1 2 3		7 Computer Programming	3 1 4	00.100	Computer Programming	3 1 4		S-107 Computer Programming	3 1 4		09 Basic Electronics	3 1 4
SPRING	CS-103 Programming Languages MT-111 Calculus	2 0 2	PRING MT-111 Calculus	3 0 3	SPRING MT-111 C	Noutro	2 0 0	SPRING *MT-114	4 Coloulus	3 0 3	FALL CS-107	Computer Programming L Calculus	2 0 0	FALL C	F-114 Calculus			09 Computer Programming	0 1 2
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	BM-201 Engineering Mechanics	3 1 4	BM-210 Biochemistry	3 1 4	BM-210 B		3 1 4	BM-210	D Biochemistry	3 1 4	DIVI-210	Biochemistry	3 1 4		M-210 Biochemistry	3 1 4	2019 *MT-272	72 Linear Algebra & Geometry	3 0 3
	BM-206 Thermodynamics for Biomedical Engineers	3 1 4	BM-206 Thermodynamics for Biomedical			ermodynamics for Biomedical Engineers	3 1 4	**BM-11	6 Physiology-II	2 1 3	BM-116	Physiology-II	2 1 3	B	7-116 Physiology-II	2 1 3		30 Biochemistry	3 0 3
	MT-272 Linear Algebra & Geometry	3 0 3 2 0 2 3 0 3	MT-272 Linear Algebra & Geometry	3 0 3 2 0 2 3 0 3		near Algebra & Geometry	3 0 3 2 0 2 2 1 3		Linear Algebra & Geometry	3 0 3	MT-272	Linear Algebra & Geometry	3 0 3	M	Γ-272 Linear Algebra & Geometry	3 0 3 3 0 3 2 0 2	BM-11f	16 Physiology-II	2 0 2 3 1 4 2 1 3 3 0 3 3 0 3 3 0 3 2 1 3 eers 3 0 3 eers 3 0 3
	BM-203 Cellular and Molecular Biology	2 0 2	BM-203 Cellular and Molecular Biology	2 0 2	BM-203 C	ellular and Molecular Biology	2 0 2		3 Cellular and Molecular Biology			Cellular and Molecular Biology	2 0 2	*N	T-223 Ordinary Differential Equations & Fourier Series	3 0 3	*BM-22	22 Engineering Mechanics for Biomedical Enginee	eers 3 0 3
	BM-211 Mechanics of Materials	3 0 3	BM-211 Mechanics of Materials	3 0 3		nysiology-II	2 1 3		20 Biophysics	2 0 2 2 1 3	DAA 000	Biophysics	2 1 3	SPRING B	M-203 Cellular and Molecular Biology	2 0 2	*MT-22	23 Ordinary Differential Equations & Fourier Series	es 3 0 3
	CS-205 Logic Design and Switching Theory	3 1 4	FALL CS-205 Logic Design and Switching The	ory 3 1 4		gic Design and Switching Theory	3 1 4		Logic Design and Switching Theory	3 1 4			3 1 4	2019 *T	C-201 Digital Logic Design	2 1 3		3 Cellular and Molecular Biology	2 0 2
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	HS-205 Islamic Studies OR	2 0 2	HS-205 Islamic Studies OR	2 0 2		amic Studies OR	2 0 2		5 Islamic Studies OR	2 0 2	110-203	Islamic Studies OR	2 0 2	I -	F-305 Engineering Economics and Management	3 0 3 3 1 4	2020 *HS-205	01 Digital Logic Design	2 1 3
	HS-209 Ethical Behaviour		HS-209 Ethical Behaviour			hical Behaviour			Ethical Behaviour			Ethical Behaviour		В	M-208 Biomedical Electronics	3 1 4	110-203	05 Islamic Studies OR	2 0 2
	BM-208 Biomedical Electronics	3 1 4	BM-208 Biomedical Electronics	3 1 4		omedical Electronics	3 1 4	BM-208	Biomedical Electronics	3 1 4	BM-208	Biomedical Electronics	3 1 4		* Changed Vide AC-140th Meeting			09 Ethical Behaviour	
	Note:- Revised Curriculum vide Resolution No. SYN-171.4(a)(v)		Note:- Revised Curriculum vide Resoluti	on No. SYN-171.4(a)(v)	* CI	anged Vide AC-131st Meeting			* Changed Vide Resolution No.AC-130.3(i)								BM-208	08 Biomedical Electronics	2 0 2 2 1 3 2 0 2 3 1 4
									** Changed Vide AC-131st Meeting									* Changed Vide AC-140th Meeting	
	Batch 2012-13		Batch 2013-14			Batch 2014-15			Batch 2015-16			Batch 2016-17			Batch 2017		/	Batch 2018	
	THIRD YEAR SEMESTER SYSTEM		THIRD YEAR SEMES	TER SYSTEM		THIRD YEAR SEMESTER SYSTEM			THIRD YEAR SEMESTER SYSTEM			THIRD YEAR SEMESTER SYSTEM			THIRD YEAR SEMESTER SYSTEM			THIRD YEAR SEMESTER SYSTEM	
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		2 1 3	BM-307 Bioinformatics	2 1 3	BM-307 B	pinformatics	2 1 3	BM-307	7 Bioinformatics	2 1 3	BM-307	Bioinformatics	2 1 3		M-307 Bioinformatics	2 1 3	BM-307	D7 Bioinformatics	2 1 3
	EE-217 Circuit Theory	2 0 2	EE-217 Circuit Theory	2 0 2	EE-217 C	rcuit Theory	2 0 2	EE-217	7 Circuit Theory	2 0 2	EE-217	Circuit Theory	2 0 2	*B	M-312 Biostatistics	2 1 3	FALL *BM-312	12 Biostatistics	2 1 3
SPRING			PRING BM-306 Bioinstrumentation & Measurem	ents-I 3 1 4	BM-306 B	oinstrumentation & Measurements-I	3 1 4	FALL BM-306	Bioinstrumentation & Measurements-I	3 1 4	FALL BM-306	Bioinstrumentation & Measurements-I	3 1 4	FALL	E-217 Circuit Theory	2 0 2	*EE 205	5 Engineering Economics and Management	3 0 3
		3 1 4	BM-309 Fundamentals of Fluid Mechanic			croprocessor Programming and Interfacing	3 1 4		Microprocessor Programming and Interfacing	3 1 4		Microprocessor Programming and Interfacing	3 1 4	.,	M-306 Bioinstrumentation & Measurements-I	3 1 4	2020 BM-306	06 Bioinstrumentation & Measurements-I	3 1 4
		3 0 3	MT-223 Ordinary Differential Equations &		*BM-309 E	Indamentals of Fluid Mechanics	2 1 3	BM-300	Fundamentals of Fluid Mechanics	2 1 3	2010 BM-309	Fundamentals of Fluid Mechanics	2 1 3	2019	S-430 Microprocessor Programming and Interfacing	3 1 4	CS-43/	Microprocessor Programming and Interfacing	3 1 4
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	BM-310 Control Systems for Biomedical Engineers	3 1 4 3 0 3	*BM-116 Physiology-II *BM-310 Control Systems for Biomedic	2 1 3 al Engineers 2 1 3	M1-223 C	dinary Differential Equations & Fourier Series	3 0 3	M1-223	3 Ordinary Differential Equations & Fourier Series	3 0 3	M1-223	Ordinary Differential Equations & Fourier Series	3 0 3	<u> </u>	S-205 Islamic Studies OR S-209 Ethical Behaviour	2 0 2		O Control Systems for Biomedical Engineers	2 1 3
			*BM-310 Control Systems for Biomedic	al Engineers 2 1 3	BM-310 C	ontrol Systems for Biomedical Engineers	2 1 3		Control Systems for Biomedical Engineers	2 1 3	BM-310	Control Systems for Biomedical Engineers	2 1 3					11 Bioinstrumentation & Measurements-II	3 1 4
FALL	BM-311 Bioinstrumentation & Measurements-II	3 1 4	FALL BF-303 Applied Economics for Engineer	s 3 0 3	BF-303 A	pplied Economics for Engineers	3 0 3	CDDING BF-303	Applied Economics for Engineers	3 0 3	SPRING *EF-305	Engineering Economics and Management	3 0 3		M-310 Control Systems for Biomedical Engineers	2 1 3		02 Business Communication	3 0 3
	BM-312 Biostatistics	2 1 3	BM-311 Bioinstrumentation & Measurem	ents-II 3 1 4	FALL BM-311 B	pinstrumentation & Measurements-II	3 1 4	SPRING BM-311	1 Bioinstrumentation & Measurements-II	3 1 4 2 0 2	BM-311	Bioinstrumentation & Measurements-II 2 Biostatistics	3 1 4	SPRING B	M-311 Bioinstrumentation & Measurements-II	3 1 4		13 Biomaterials	3 1 4
		3 1 4	BM-312 Biostatistics	s 3 0 3 ents-II 3 1 4 2 1 3	*BM-315 M	echanics of Materials	3 0 3 3 1 4 2 0 2	2018 BM-315	Mechanics of Materials	2 0 2	2019 BM-312	2 Biostatistics	3 0 3 3 1 4 2 1 3		S-202 Business Communication	3 1 4 3 0 3 3 1 4	*EE-49°	93 Digital Signal Processing	2 1 3 3 1 4 3 0 3 3 1 4 3 1 4 3 1 4
	Note:- Revised Curriculum vide Resolution No. SYN-171.4(a)(v)		BM-313 Biomaterials	3 1 4	BM-312 B	ostatistics	2 1 3	BM-312	2 Biostatistics	2 1 3	BM-313	Biomaterials	3 1 4		M-313 Biomaterials	3 1 4		* Changed Vide AC-140th Meeting	
·			Note:- Revised Curriculum vide Resoluti	on No. SYN-171.4(a)(v)	BM-313 B	omaterials	3 1 4	BM-313	Biomaterials	3 1 4		* Changed Vide AC-140th Meeting		*E	E-493 Digital Signal Processing	3 1 4	I.		
			* Changed Vide AC-131st Meeting		* CI	anged Vide AC-131st Meeting			<u>.</u>					,,	* Changed Vide AC-140th Meeting				
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		2 0 2			DM 404 N		2 0 0	DM 404	Numerical Methods for Pierredical Facines disc	2 0 0	DM 404		2 0 0		M-### Electives-1		*D** ***	## Electives-1	
	BM-401 Numerical Methods for Biomedical Engineering	3 0 3	*BM-220 Biophysics	2 1 3	BM-401 N	umerical Methods for Biomedical Engineering	3 0 3	BN-401	Numerical Methods for Biomedical Engineering	3 0 3	BM-401	Numerical Methods for Biomedical Engineering	3 0 3			الالتناياء			
	HS-404 Business Communication & Medical Ethics	3 0 3 3 1 4	BM-401 Numerical Methods for Biomedic	al Engineering 3 0 3	HS-404 B	usiness Communication & Medical Ethics	3 0 3	HS-404	Business Communication & Medical Ethics	3 0 3		2 Business Communication	3 0 3	FALL B	A-### Electives-2			## Electives-2	
SPRING	EE-493 Digital Signal Processing	3 1 4 5	PRING HS-404 Business Communication & Med		FALL EE-493 D	gital Signal Processing	3 1 4	FALL EE-493	B Digital Signal Processing	3 1 4	FALL EE-493	Digital Signal Processing	3 1 4	FALL B	M-401 Numerical Methods for Biomedical Engineering	3 0 3	FALL BM-401	Numerical Methods for Biomedical Engineering	3 0 3
J. KING	BM-406 Biomedical Imaging	3 1 4	EE-493 Digital Signal Processing	3 1 4	17-18 BM-### E	ectives	3	2018 *BM-406	6 Biomedical Imaging	2 1 3	2019 BM-406	Biomedical Imaging	2 1 3	2020 B	N-406 Biomedical Imaging	2 1 3	2021 BM-406	06 Biomedical Imaging	3 0 3 2 1 3 2 1 3 0 3 3 0 3 3 0 3 3 3 0 3 ineers 2 1 3
	B14 000 E1 0	3	*CS-430 Microprocessor Programming	& Interfacing 3 1 4	*BM-220 B	ophysics	2 1 3 0 3 3	BM-###	# Flectives	3	BM-###	# Flectives		*B	M-451 Biosignal Processing	2 1 3	*BM-45	1 Biosignal Processing	2 1 3
_	*BM-413 *Bio-Medical Engineering Project	0 3 3 0 3 3 2 0 2	*CS-430 Microprocessor Programming *BM-413 *Bio-Medical Engineering Pro	& Interfacing 3 1 4 ect 0 3 3	*BM-413 *I	ophysics io-Medical Engineering Project	0 3 3	BM-413	3 *Bio-Medical Engineering Project	0 3 3	BM-413	B *Bio-Medical Engineering Project	0 3 3	В	M-451 Biosignal Processing M-413 *Bio-Medical Engineering Project	2 1 3 0 3 3	BM-417	51 Biosignal Processing 13 *Bio-Medical Engineering Project	0 3 3
*	*BM-413 Bio-Medical Engineering Project	0 3 3	*BM-413 Bio-Medical Engineering Projection	ect 0 3 3 2 1 3	*BM-413 B	o-Medical Engineering Project	0 3 3	BM-413	Bio-Medical Engineering Project	0 3 3	BM-413	Bio-Medical Engineering Project	0 3 3	l B	II-413 Bio-Medical Engineering Project	0 3 3	BM-413	13 Bio-Medical Engineering Project	0 3 3
	BM-414 Health Care Management	2 0 2	BM-404 Biomechanics	2 1 3	BM-414 H	ealth Care Management	0 3 3 2 0 2	BM-414	Health Care Management	0 3 3 2 2 0 2	*HS-403	3 Entrepreneurship	0 3 3 3 0 3	*H	S-403 Entrepreneurship	0 3 3 3 0 3	*HS-403	03 Entrepreneurship	3 0 3
	BM-404 Biomechanics	2 1 3	*BM-406 Biomedical Imaging	2 1 3		omechanics	2 1 3	SPRING *HS-403	3 Entrepreneurship	3 0 3		2 Modelling and Simulation for Biomedical Engineers	2 1 3	SPRING *B	M-452 Modelling and Simulation for Biomedical Engineer	rs 2 1 3	SPRING *BM-45	52 Modelling and Simulation for Biomedical Engin	neers 2 1 3
	*CS-430 Microprocessor Programming & Interfacing	3 1 4	BM-414 Health Care Management	2 0 2		omedical Imaging	2 1 3 2 1 3	2019 *BM-452	2 Modelling and Simulation for Biomedical Engin	neers 2 1 3		# Electives		2021 B	A-### Electives-3	rs 2 1 3	2022 BM-###	## Electives-3	
				2 0 2			0			100.0	2020 *HC 010	9 Professional Ethics	2 0 0	2021			ZUZZ *UC 21		
	*BM-220 Biophysics	2 1 3	BM-### Electives	3	BM-### E	ectives	3	BM-###	# Electives		-HS-219	Professional Etnics	2 0 2	1 7	S-219 Professional Ethics	2 0 2	-HS-219	19 Professional Ethics	2 0 2
	BIVI-### Electives	3	BM-### Electives	3	BM-### E	ectives	3	BM-###	Flectives		BM-###	F Electives		В	/I-### Electives-4		BM-###	# Electives-4	
	Note:- Revised Curriculum vide Resolution No. SYN-171.4(a)(v)		Note:- Revised Curriculum vide Resoluti	on No. SYN-171.4(a)(v)	, ci	anged Vide AC-131st Meeting			* Changed Vide AC-140th Meeting			* Changed Vide AC-140th Meeting			* Changed Vide AC-140th Meeting				
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	Elective Courses		Elective Course	s		Elective Courses			Elective Courses			Elective Courses			Elective Courses			Elective Courses	
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BM-42		3 0 3	BM-421 Genetic Engineering	3 0 3		enetic Engineering	3 0 3	BM-421	Genetic Engineering	3 0 3	BM-421	Genetic Engineering	3 0 3	BM-421	Genetic Engineering	3 0 3	BM-421	Genetic Engineering	3 0 3
		2 1 3	BM-422 Biotechnology	2 1 3	BM-422 B	otechnology	2 1 3	BM-422	Biotechnology	2 1 3	BM-422	Biotechnology	2 1 3	BM-422		2 1 3	BM-422	Biotechnology	2 1 3
BM-42			BM-423 Introduction to Robotics	2 1 3		roduction to Robotics	2 1 3	BM-423	Introduction to Robotics	2 1 3	BM-423	Introduction to Robotics	2 1 3	BM-423		2 1 3	BM-423	Introduction to Robotics	2 1 3
BM-42	423 Introduction to Robotics	2 1 3			BM-424 F	uid Dynamics	3 0 3	BM-424	Fluid Dynamics	3 0 3	BM-424	Fluid Dynamics	3 0 3	BM-424	Fluid Dynamics	3 0 3	BM-424		
BM-42 BM-42	423 Introduction to Robotics	2 1 3	BM-424 Fluid Dynamics	3 0 3												0 0 0		Fluid Dynamics	3 0 3
BM-42 BM-42 BM-42	423 Introduction to Robotics	2 1 3	BM-425 Telemedicine	3 0 3	BM-425 T	elemedicine	3 0 3	BM-425	Telemedicine		BM-425	Telemedicine	3 0 3	BM-425	Telemedicine	3 0 3	BM-425	Telemedicine	3 0 3
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