

MGM INSTITUTE OF HEALTH SCIENCES (Deemed University u/s 3 of UGC Act, 1956) Grade 'A' Accredited by NAAC Sector-01, Kamothe, Navi Mumbai - 410 209 Tel 022-27432471, 022-27432994, Fax 022 - 27431094 E-mail : registrar@mgmuhs.com | Website : www.mgmuhs.com

Programme	Programme Outcome		
Bachelor in Prosthetics and Orthotics	The student should be able to meet the following learning objectives:		
	PO1 Assess the medical condition of a patient related to their orthotic or prostheticmanagement using appropriate investigative techniques which include patienthistory taking and clinical testing.		
	PO2. Formulate an optimal prosthetic and orthotic solution using information from the patient assessment, other members of the health care team, medicalcharts, etc.		
	PO3. Communicate and discuss patient goals and expectations and discuss anddebate the prosthetic management with the patient, co-workers and other		
	PO4. members of the health care team.		
	PO5. Reliably measure and capture a positive cast or image of patient / clients'appendage while correctly positioning the body part and if appropriate applythe necessary corrective force system.		
	PO6. Identify, prescribe and justify selection of appropriate materials and componentry in the fabrication of the prostheses or orthoses.		
	PO7. Construct the prostheses or orthoses using appropriate fabrication techniquesin preparation for the initial fitting.		
	PO8. Fit the prostheses or orthoses to the patient using static and dynamicfunctional criteria established from the original assessment.		
	PO9. Evaluate the quality of the prostheses or orthoses fit to ensure the appropriate interface contouring, force application and trim lines.		
	PO10. Identify problems related to device fit and/or alignment and be able to suggestand implement appropriate correction.		
	PO11. Assess and solve prosthetic or orthotic problems as part of short and longterm patient care.		
	PO12. Maintain accurate records of patient treatment and follow up as well asconfidentiality of such information.		

	PO13. Communicate effectively with patient, co-workers, and other health careprofessionals in such a manner that will ensure		
	the highest quality of serviceand reflect a professional attitude on		
	the part of the student.		
	PO14. Educate the patient /client and/or caregiver on use, care		
	and function of the prostheses or orthoses.		

Dr. Rajesh B. Goel Registrar MGM INSTITUTE OF HELATH SCIENCES (DEEMED UNIVERSITY u/s 3 of UGC Act, 1956) NAVI MUMBAI- 410 209



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Programme	Programme Specific Outcome	
Bachelor in Prosthetics and Orthotics	At the end of the BPO Course, the learner shall be able:	
	1. To assess, prescribe and provide comprehensive prosthetic and orthotic	
	management to the individual and the community appropriate to his/her position as a	
	member of the health care team.	
	2. Be competent to take preventive, supportive, corrective and rehabilitative steps in	
	respect to the commonly encountered problems related to prosthetics and orthotics.	
	3.To carry out Evidence Based Practice in prosthetics and orthotics	
	4.Appreciate the psycho-social, cultural, economic, and environmental factors	
	affecting health, and develop humane attitude towards the patients/relatives, in discharging one's professional responsibilities	
	5.Be familiar with the various National policies and acts related to empowerment of Persons with disabilities	
	Acquire basic management & administrative skills in the areas of materials,	
	financial and human resources related to prosthetics and orthotics	
	7. Develop the communication skills to establish effective communication with the stake holders	

8. Practice prosthetics & orthotics ethics in patient care, service delivery, and research.
 Develop attitude for self-learning and acquire necessary skills including the use of appropriate technologies.

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Program	Course	Course Outcome (Please refer RCI website links provided above)
Bachelor in Prosthetics & Orthotics	Anatomy	Students are able to meet the following Learning Objectives:Dijectives:1.Explain the process of human growth and development.2. Demonstrate competence in identifying and differentiating between surface anatomical
Bachelor in Prosthetics & Orthotics	Physiology	Students are able to meet the following Learning Objectives:1.Describe and explain cell biology.1.2.Explain and give examples of basic tissues, their properties and structure3. Compare and contrast the structure and properties of biological substances.4. Describe parts and organs of the body by
Bachelor in Prosthetics & Orthotics	Workshop Technology & Material Science	 Students are able to meet the following Learning Objectives: 1.Be familiar with the occupational health and safety policy and procedures in the workplace. 2. Demonstrate proficiency in the use of hand tools and machine tools. 3. Able to Explain the important properties of various types of materials: metals, ceramics, polymers, and composites. 4. Describe the basis for the selection of different materials for specific prosthetic

		 and orthotic applications. 5. Demonstrate knowledge of toxicity and safety issues associated with the use of specific materials. commonly used in the fabrication of Prostheses & Orthoses. Students are able to meet the following Learning Objectives: 1.Demonstrate an ability to utilize appropriate terminology and units to describe mechanical principles. 2. Apply the mechanical principles of statics and dynamics to quantify and explain linear and angular motion of the human body. 3. Apply the concepts of stress and strain in the
		 analysis of basic structural elements. 4. Determine and draw diagrams for internal forces and bending moments (axial forces, shear forces, moments and torques) in a structural member. 5. Discuss the concepts of work energy and power.
Bachelor in Prosthetics & Orthotics		Students are able to meet the following Learning Objectives: 1. Demonstrate an ability to apply principles of tissue mechanics to explain the principles of P&O treatment, (involving various force systems) and the
Bachelor in Prosthetics & Orthotics	Biomechanics I	 practical problems encountered in Prosthetics and Orthotics. 2.Use biomechanical terminology to describe position and motion of the human body. 3. Utilise temporal spatial, kinematic and kinetic information to distinguish between normal and abnormal function of the upper limbs, lower limbs & Spine. 4. Analyse the forces at a skeletal joint for various static and dynamic activities. 5. Demonstrate the ability to analyse forces and moments applied to the body by Prosthetic and Orthotic devices. 6. Apply biomechanical principles to generate optimal solutions to clinical problems in Prosthetics and Orthotics.
Bachelor in		Learning The student should be able to meet the following learning objectives: 1. Explain basic concept of electricity and
Prosthetics & Orthotics	Basic Electronics	electronics covering following:

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	DC circuits, inductance and capacitance, AC
	circuits, power, supplies, amplifiers,
	feedback, interference rejection techniques,
	myoelectrodes and bioelectricity
	2.Explain eelectronics measuring system
	3.Explain safety practice of electricity
	Students are able to meet the following Learning
	Objectives:
	1. Compare and contrast strategies for clinical
	assessment of patients and describe appropriate
	investigative techniques including patient's
	history taking and physical examination.
	2. Recognize and describe the signs and
	symptoms of the most common pathologies
	which require prosthetic solutions including,
	etiology, clinical presentation, prognosis and
	appropriate device management.
	3. Distinguish between the physical
	characteristics of the limbs and discuss the
	relative implication for device design.
	4. Describe and compare temporospatial and
	kinematic characteristics of normal and
	pathological gait and use this information to
	justify the selection and design of appropriate
	devices.
	5. Discuss biomechanical force systems and use
	these principles in generating an appropriate
	Prosthetic prescription.
	6. Describe the mechanics of materials and be
	able to apply these concepts to the design and
	construction of devices.
	7. Compare and contrast the functional
	characteristics of Prosthetic components.
	8. Formulate appropriate Prosthetic and Orthotic
	prescriptions for wide range clinical situations.

Bachelor ir Prosthetics & Orthotics	n Prosthetics Science - I	Students are able to meet the following Learning Objectives: 1.Compare and contrast strategies for clinical assessment of patients and describe appropriate investigative techniques including patient history taking and physical examination. 2.Recognize and describe the signs and symptoms of the most common pathologies which require Orthotic solutions including, etiology, clinical presentation, prognosis and appropriate device management. 3.Demonstrate empathy between Orthotic theory and the environment in which the patient is situated. 4.Distinguish between the physical characteristics of the limbs and discuss the relative implication for device design. 5. Describe and compare temporospatial and kinematics characteristics of normal and pathological gait and use this information to justify the selection and design of appropriate devices. 6.Discuss biomechanical force systems and use these principles in generating an appropriate Orthotic prescription. 7.Describe the mechanics of materials and be able to apply these concepts to the design and construction of devices.
		8.Compare and contrast the functional characteristics of orthotic components.9.Formulate appropriate orthotic prescriptions for Students are able to meet the following Learning
Bachelor ir Prosthetics & Orthotics	Orthotics Science	Objectives: 1. Derive free body diagrams in order to describe clinical problems and generate treatment solutions.
Bachelor in	Engineering	The student should be able to meet the
Prosthetics & Orthotics	Drawing	following learning objectives.
Bachelor in Prosthetics & Orthotics	Pathology	1. Describe the basic pathological processes that underlie disease (eg: cell
		injury and necrosis, inflammation and
		healing, ischemia, infarction and
		neoplasia);
		2. Apply knowledge of basic pathological
		processes to explain the etiology,
		pathogenesis, structural and functional
		manifestations of diseases commonly
		encountered in clinical practice, including relevant conditions affecting
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		locomotion and body systems
		(musculoskeletal system and nervous
		system,
		vascular system).
		The student should be able to meet the following
		learning objectives:
Bachelor in	Onnopaeulos,	1. Have an understanding of different clinical
Prosthetics & Orthotics	Amputation	conditions that may indirectly
		impact on the patients' ability to successfully
		rehabilitate using the device.
		2. Explain the management of different disabling
		conditions.
		3.Explain the principles of amputations and
		revision amputation, types and techniques
		4. Explain the post operative care of the stump
		and stump hygiene
		5. Describe the stump dermatology and the
		common skin diseases and management.
		6. Describe and fabricate the post operative
		fitting in the lower extremity.
		7. Describe common surgical technique and how
		they may influence prosthetics and Orthotics fit
		and design
		The student should be able to meet the following
	Community	learning objectives to
Bachelor in	Rehabilitation and	1. recognise members of the clinic team and
Prosthetics & Orthotics	Diachility	identify benefits associated with a
		team approach
		2. Describe and discuss theoretical principles of
		Physiotherapy & Occupational
		Therapy
		3. Describe theories related to the psychology of
		loss and disability;
		4. Discuss the social causes of disability in India
		and the link between poverty
		and the link between poverty and disability.
		and the link between poverty and disability. 5.Reflect and analyze on their attitude/values
		and the link between poverty and disability. 5.Reflect and analyze on their attitude/values and attitudes towards persons
		and the link between poverty and disability. 5.Reflect and analyze on their attitude/values and attitudes towards persons with disabilities, their families and the community
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		and the link between poverty and disability. 5.Reflect and analyze on their attitude/values and attitudes towards persons with disabilities, their families and the community
		and the link between poverty and disability. 5.Reflect and analyze on their attitude/values and attitudes towards persons with disabilities, their families and the community (Socio-cultural and religious)
		and the link between poverty and disability. 5.Reflect and analyze on their attitude/values and attitudes towards persons with disabilities, their families and the community (Socio-cultural and religious) 6. Explain the UN convention rights and role as Prosthetist and Orthotist
		 and the link between poverty and disability. 5.Reflect and analyze on their attitude/values and attitudes towards persons with disabilities, their families and the community (Socio-cultural and religious) 6. Explain the UN convention rights and role as Prosthetist and Orthotist The student should be able to meet the following
Bachelor in		and the link between poverty and disability. 5.Reflect and analyze on their attitude/values and attitudes towards persons with disabilities, their families and the community (Socio-cultural and religious) 6. Explain the UN convention rights and role as Prosthetist and Orthotist The student should be able to meet the following learning objectives:
Bachelor in Prosthetics & Orthotics	Biomechanics II	 and the link between poverty and disability. 5.Reflect and analyze on their attitude/values and attitudes towards persons with disabilities, their families and the community (Socio-cultural and religious) 6. Explain the UN convention rights and role as Prosthetist and Orthotist The student should be able to meet the following learning objectives: 1. Demonstrate an ability to apply principles of
Bachelor in Prosthetics & Orthotics	Biomechanics II	 and the link between poverty and disability. 5.Reflect and analyze on their attitude/values and attitudes towards persons with disabilities, their families and the community (Socio-cultural and religious) 6. Explain the UN convention rights and role as Prosthetist and Orthotist The student should be able to meet the following learning objectives: 1. Demonstrate an ability to apply principles of tissue mechanics to explain the
	Biomechanics II	 and the link between poverty and disability. 5.Reflect and analyze on their attitude/values and attitudes towards persons with disabilities, their families and the community (Socio-cultural and religious) 6. Explain the UN convention rights and role as Prosthetist and Orthotist The student should be able to meet the following learning objectives: 1. Demonstrate an ability to apply principles of

		practical problems appaulatored in practication
		practical problems encountered in prosthetics and orthotics
		2. Use biomechanical terminology to describe position and motion of the human
		body
		3.Discuss mechanical principles governing
		human motion
		4. Utilise temporospatial, kinematic and kinetic
		information to distinguish
		between normal and abnormal function of the
		upper limbs, lower limbs &
		Spine.
		5. Analyse the forces at a skeletal joint for
		various static and dynamic activities
		6. Demonstrate the ability to analyzer forces and
		moments applied to the body
		by prosthetic and orthotic devices.
		7. Apply biomechanical principles to generate
		optimal solutions to clinical
		problems in prosthetics and orthotics.
		8. Understand the concepts of differentiation and
		integration and evaluate
		derivatives and integrals of a function
		The student should be able to meet the following
		learning objectives
Bachelor in	Psychology and	1. Rrecognise members of the clinic team and
Prosthetics & Orthotics	Sociology	identify benefits associated with a
		team approach
		2.Describe and discuss theoretical principles of
		rehabilitation;
		3. Reflect and analyse on their attitude/values
		and attitudes towards persons
		and attitudes towards persons
		with disabilities, their families and the community
		(Socio-cultural and religious)
		4. Explain the different approaches to
		rehabilitation.
		5. Explain different component of CBR and the
		guiding principles of CBR
		implementation.
		6. Explain P & O role in a CBR programme
		Knee Joints: Different types of Endoskeletal and
		exoskeletal knee joints - Single
Bachelor in	Prosthetics	axis knee joints, Polycentric knee joints, Free
Prosthetics & Orthotics	Science - II	knee, Constant friction knee joints,
		Variable friction Knee joint, microchip control
		knee, hydraulic knee joint, swing Phase
		control knee joints, Stance Phase control knee
		joints etc.
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		Hip Joints: For above knee as well as for hip
	_	disarticulation/ hemi- pelvictomy – all
		types of hip joints especially single axis and Swivel type.
		Through Knee Prosthesis: Various types of
		through knee prosthesis - Through
		knee prosthetic Components. Materials used
		for through knee prosthesis. Casting
		techniques for through knee prosthesis, Cast
		modification, Fabrication Techniques of
		through hip prosthesis, through knee Gait
		analysis and deviations, Through knee
		Check-out Procedures.
		Trans Femoral Prosthesis: Types of Trans Femoral Prosthesis. Trans femoral
		Prosthetic Components. Trans Femoral
		Socket designs. Casting and measurement
		techniques, Cast modification, Fabrication
		techniques of Trans Femoral socket.
		Various types of suspension used in Trans
		Femoral Prosthesis
		Gait Deviations and Analysis: Trans Femoral Gait Analysis, Trans Femoral Checkout
		-
		Procedures,
		Orthotics Components: Prescription principles of various types of Knee Orthoses
Bachelor in	Orthotics	(KO), Knee Ankle Foot Orthoses (KAFO), Hip
Prosthetics & Orthotics	Science - II	Knee Ankle foot Orthoses (HKAFO).
		RGO & ARGO Orthoses
		All types of K.A.F.O., H.K.A.F.O. FRO, RGO & ARGO etc. and also Orthoses for
		management of C.D.H., C.P., Paraplegics, Legg
		Calve perthes diseases, Spina
		Bifida, Leprosy and Hemiplegia etc.
		Fabrication: Cast and measurement techniques, appropriate selection of materials
		and components, cast modification, fabrication
		and alignment technique, using of
		different technologies – its advantages and disadvantages, Accommodation of limb
		length discrepancy while designing orthosis, Gait
		analysis and checkout procedures.
		Tanaiyoio and oncorrout procedures.

		Orthotics: Orthoses for sports injury,
		Reciprocating Gait Orthoses (RGO), Hip
		Guidance Orthoses(HGO), Fracture Cast
		Bracing, Swivel walker, orthopodium/
		Parapodium. Weight relieving orthoses,
		Extension orthoses or Ortho-prostheses,
		PTB. Orthoses Orthotic management of Rickets
		and Knee Arthritis
		Learning objective of : BPO208
Bachelor in	Bharmagalagy	The student should be able to meet the following
Prosthetics & Orthotics	Pharmacology	learning objectives:
Bachelor in	Computer Scienc	1.Describe the advanced application of computer
Prosthetics & Orthotics	and Graphical	in prosthetics and orthotics field.
	Communication	2. Design various components for prosthetics and
		orthotics use.
		3.Make use of computer knowledge in the
		statistics data analysis and documentation.
		4.Describe the principles of computer aided
		design(CAD) & computer aided
		manufacture(CAM)
		The Students should be able to meet the
De als a la a la		following objectives : -
Bachelor in	Biomechanics - III	Biomechanics of Hand, wrist complex, elbow
Prosthetics & Orthotics		complex & shoulder complex.
		Upper Limb: Grasp patterns, grasp forces,
		mechanical replacement of hand function,
		augmentation of deficient hand function, upper
		limb prosthetic socket biomechanics
		– all types, Orthosis biomechanics, application of
		external power, myoelectic control
		of external power and usage of devices.
		Control systems: Introduction to control theory.
		Application in Prosthetics and
		Orthotics of functional electrical stimulation
		(FES), hybrid orthosis, myoelectrics and
		bio-feedback.
		Spinal Biomechanics: Motions of the spine,
		Biomechanics of different region in spinal
		column, Biomechanics Inter vertebral disk,
		Lumbar Spine loading during normal
		activities and effects of Orthosis on this loads,
		Biomechanical Principles of spinal
		orthosis, Biomechanics of Corsets, Cervical/
		thoraco/lumbar/sacral spinal orthosis.
		Biomechanics of scoliosis correction using
		different technologies and especially
		using Spinal orthosis.
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		Design concept part-I: Buckling, theories in
		failure/ fatigue/stress concentrations,
		connections, fluid mechanics and beam
		deflection.
		Design concept part-II: Shear force and bending
		moment diagrams, centroids, 2nd
		moment of area and mass, theorem of parallel
		axes, bending stress, torsional stress
		of circular shafts, combined axial and bending
		stresses. Combined and torsional
		stresses, . Design test
		standards/materials/Philadelphia Loads/ISO.
		Design calculations for P&O devices.Practical:
		Different ways of design tests, use of
		Different ways of design tests, use of
		FES and myoelectric control system in P&O
		devices.
		Combined and torsional stresses, combined axial
		bending torsional stresses. Open
		and closed helical springs, beam deflection.
		Designtest
		standards/materials/Philadelphia Loads/ISO.
		Design calculations for P&O
		devices/BIS. Column of the spine, biomechanics
		•
		of spinal injuries, follower load,
		Euler's theory of buckling
		The student should be able to meet the following
		learning objectives:
Bachelor in	Assistive	
		1. Explain the prescription of commonly used
Prosthetics & Orthotics	Technology	mobility aids like crutches, walking
		stick, and walkers. Assess and prescribe the
		best possible mobility solution
		for a wheelchair user
		2.Carry out repair and maintenance of
		wheelchair
		3. Describe the correct use of the wheelchairs,
		transfers and various
	+	modifications of wheel chairs
	+	
		4. Train users to make the best use of their
		wheelchair.
		5. Assess, prescribe and fabricate different types
		of developmental aids
		6. Describe the analysis of gait with the related
		6. Describe the analysis of gait with the related
		 Describe the analysis of gait with the related mobility aids.
		6. Describe the analysis of gait with the related

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Bachelor in	Research Methodology and	1. Explain the process, types, design, needs,
Prosthetics & Orthotics	Bio Statistics	principles of research
		2.Formulate an appropriate research plan in
		order to solve a clinical problem
		3. Examine the concepts of estimation and
		hypothesis testing with applications
		to population proportions, means, variances
		4.Describe the sampling, data collection and
		processing of data
		5. Examine the data by using different measures
		6. Perform effective descriptive statistical
		analysis as well as statistical inference
		for a variety of mainstream applications
		7.Use appropriate empirical and probability
		distributions to model data.
		8. Conduct a basic research study in order to
		solve a clinical problem
		The student should be able to meet the following
		learning objectives:
		Upper Limb:
Bachelor in Prosthetics & Orthotics	Prosthetics Science - III	Control systems:
		Upper limb prosthetics:
		Partial Hand: passive, cosmetics and functional
		types which also includes silicon
		prostheses.
		Prescription Criteria, for following level of amputation types of Partial Hand amputation, Wrist Disarticulation, Trans Radial Amputation, Elbow disarticulation, Trans Humeral Amputation, Shoulder Disarticulation, Four Quarter Amputation.
		Casting and measurement techniques, Cast modifications, Fabrication techniques, alignment techniques, Harnessing, Cable control system and suspension mechanisms, Fitting, donning and doffing techniques. Checkout procedures, Testing and Training for all above mentioned levels of amputation.

Fabrication techniques of – single wall and double wall, alignment techniques, Harnessing and suspension mechanisms, – body powered and externally powered.Myo Electric Prostheses, Fitting, donning and doffing techniques. Control systems: Introduction to control theory, application of Functional Electrical Stimulation (FES) in Orthotics, Upper Limb Orthotics: Objectives of splinning and principles. Bachelor in Prosthetics & Orthotics Orthotics Science Prosthetics & Orthotics Immobilization/ mobilization, -III Appliances for flail elbows: Measurement/casting and Fabrication of Shoulder Orthoses, The shoulder joint braces and splints, Abduction Splints and braces, Traction splint of Humerus, All types of Shoulder Elbow Wrist and Hand Orthoses which also includes both body powered and externally powered. All types of fracture Orthoses, Temporary splinting, Feeder and other assistive appliances. Upper Limb: Orthosis biomechanics, application of external power, myoelectric Control of external power and usage of devices. Principles of Administrative and Management structure, Industrial Management, Principles of good organization, of external power, Workshop Administration and management. Time sheat and staff Welfare. Material Management: Store and store organization. Inventory Control. Durchase organization. Introduction to cost accounting. Use of computer for effective store management. Safety: Industrial accidents, safety and ha	r		1
application of Functional Electrical Stimulation (FES) in Orthotics, Upper Limb Orthotics: Objectives of splinting and principles. Bachelor in Prosthetics & Orthotics -III Immobilization/ mobilization, Appliances for flail elbows: Measurement/casting and introbustion of Shoulder Orthoses, The shoulder joint braces and splints, Abduction Splints and braces, Traction splint of Humerus, All types of Shoulder Elbow Wrist and Hand Orthoses which also includes both body powered and externally powered. All types of fracture Orthoses, Temporary splinting, Feeder and other assistive appliances. Upper Limb: Orthosis biomechanics, application of external power and usage of devices. Principles of Administrative and Management structure, Industrial Management: Principles of good organization, Type of Organizational setup Workshop Administration and management. Management: Principles of good organization, Type of Organization and management. Type of Organizational setup Workshop Administration and management. Management: Introduction, Discipline, Security, distribution of work, Work sheet, Time sheet and staff Welfare. Material Management: Introduction to cost accounting. Use of computer for effective store management. Safety: Industrial accidents, safety and hazards Planning: Planning: Planning of Prosthetics and Orthotics bepartiments at various levels, all			double wall, alignment techniques, Harnessing and suspension mechanisms,– body powered and externally powered,Myo Electric Prostheses, Fitting, donning and doffing techniques.
Upper Limb Orthotics: Objectives of splinting and principles. Bachelor in Prosthetics & Orthotics Orthotics Science III Orthotic management of rheumatoid arthritis and burns etc. Immobilization/ mobilization, Appliances for flail elbows: Measurement/casting and Appliances for flail elbows: Measurement/casting and Fabrication of Shoulder Orthoses, The shoulder joint braces and splints, Abduction Splints and braces, Traction splint of Humerus, All types of Shoulder Elbow Wrist and Hand Orthoses which also includes both body powered and externally powered. All types of fracture Orthoses, Temporary splinting, Feeder and other assistive appliances. Upper Limb: Orthosis biomechanics, application of external power, myoelectric control of external power and usage of devices. Principles of Administrative and Management structure, Industrial Management: Introduction, Discipline, Security, distribution of work, Work sheet, Time sheet and staff Welfare. Material Management: Store and store organization. Introduction to cost accounting. Use of Inventory Control. Purchase organization. Introduction to cost accounting. Use of computer for effective store management. Safety: Industrial accidents, safety and hazards Planning: Planning of Prosthetics and Orthotics Departments at various levels, all			
principles. Bachelor in Prosthetics & Orthotics Orthotics Science III Orthotic management of rheumatoid arthritis and burns etc. Immobilization/ Appliances for flail elbows: Measurement/casting and Appliances for flail elbows: Measurement/casting and Fabrication of Shoulder Orthoses, The shoulder joint braces and splints, Abduction Fabrication of Shoulder Orthoses, The shoulder Immobilization/ powered Splints and braces, Traction splint of Humerus, All types of Shoulder Elbow Wrist and Hand Orthoses which also includes both body powered and externally powered. All types of fracture Orthoses, Temporary splinting, Feeder and other assistive Upper Limb: Orthosis biomechanics, application of external power, myoelectric Upper Limb: Orthosis biomechanics, application of external power, myoelectric Immobilization Management, Principles of good organization, Type of Organizational setup Workshop Administration and management. Bachelor in Prosthetics & Orthotics P & O Workshop Management: Introduction, Discipline, Security, distribution of work, Work sheet, Time sheet and staff Welfare. Material Management: Store and stare organization. Introduction to cost accounting. Use of Inventory Control. Purchase organization. Introduction to cost accounting. Use of Immobilization Safety: Industrial accidents, safety and hazards Planning: Planning of Prosthetics			Stimulation (FES) in Orthotics,
Prosthetics & Orthotics -III burns etc. Immobilization/ mobilization, Appliances for flail elbows: Measurement/casting and Fabrication of Shoulder Orthoses, The shoulder joint braces and splints, Abduction splints and braces, Traction splint of Humerus, All types of Shoulder Elbow Wrist and Hand Orthoses which also includes both body powered and externally powered. All types of fracture Orthoses, Temporary splinting, Feeder and other assistive appliances. Upper Limb: Orthosis biomechanics, application of external power, myoelectric control of external power and usage of devices. Principles of Administrative and Management structure, Industrial Management Prosthetics & Orthotics Prosthetics & Orthotics Prosthetics & Orthotics Immobilization of work, Work sheet, Immobilization, Inventory Control. Purchase organization. Introduction to cost accounting. Use of Computer for effective store management. Safety: Industrial accidents, safety and hazards Planning: Planning of Prosthetics and hazards Planning: Planning of Prosthetics <td></td> <td></td> <td></td>			
Immobilization/ mobilization, Appliances for flail elbows: Measurement/casting and Fabrication of Shoulder Orthoses, The shoulder joint braces and splints, Abduction splints and braces, Traction splint of Humerus, All types of Shoulder Elbow Wrist and Hand Orthoses which also includes both body powered and externally powered. All types of fracture Orthoses, Temporary splinting, Feeder and other assistive appliances. Upper Limb: Orthosis biomechanics, application of external power, myoelectric control of external power and usage of devices. Principles of Administrative and Management structure, Industrial Management, Principles of good organization, Type of Organizational setup Workshop Administration and management. Bachelor in Prosthetics & Orthotics P & O Workshop Management: Introduction, Discipline, Security, distribution of work, Work sheet, Time sheet and staff Welfare. Material Management: Store and store organization. Inventory Control. Purchase organization. Introduction to cost accounting. Use of computer for effective store management. Safety: Industrial accidents, safety and hazards Planning: Planning of Prosthetics and Orthotics Departments at various levels, all	Bachelor in	Orthotics Science	Orthotic management of rheumatoid arthritis and
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and Orthotics Departments at various levels, all			
			types of various scales. Layout,

		appointment systems and record keeping,
		process and budgeting address issues related to clinic management including,
		appointment systems and record keeping,
		Quality control and the use of quality assurance system Appropriate code of ethical
		behaviour of P & O Professionals
		Introduction of administration, Nature and scope of administration, How to be an
		effective administrator, Principles of administration and its applications to Prosthetics
		and orthotics setup. Rules of Professional Conduct.
		The Students should meet the following objectives :
		1.Fabrication of Prosthesis for through hip, double or multiple amputees on
		model/ mannequins, 2.Fitting of Prosthesis in cases and developing and/or adapting
		new designs.
		Spinal Orthoses: Historical development of spinal orthoses. Anatomical and
		Physiological Principles of construction and
		fitting of spinal Orthoses. Biomechanical
		principle and Functions of spinal Orthoses.
		Indications and contraindications for
		spinal orthosis Cervical Orthoses: Principle, material,
		measurement/ casting, fabrication of all
Bachelor in Prosthetics & Orthotics	Prosthetics Science - IV	types of Cervical Orthoses especially different types of cervical collar, semi-rigid/rigid
		cervical orthoses both temporary and
		permanent. Cervical Traction, HALO traction
Bachelor in	Orthotics Science	and various types. Thoraco-Lumbo-Sacral Orthoses: Flexible spinal

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		Principle, material, measurement/ casting,
		fabrication of all types of Thoraco Lumbo
		sacral orthoses (TLSO) especially all types of
		orthoses for scoliosis& Kyphosis. All
		types of under arm orthoses and variants.
		Various types of Immobilisers, Fitting,
		donning and doffing techniques. Checkout
		procedures, Testing and Training. Lumbo
		sacral Orthoses: Principle, material,
		measurement/ casting, fabrication of all types of
		Lumbo sacral orthoses (LSO) especially Corsets
		and all types of orthoses for
		Lordosis and scoliosis. Pelvic traction and its
		uses. Cranial Orthoses Orthotic
		management of spinal deformities / injuries.
		Orthotic management of Pott's spine
		The student should be able to meet the following
		learning objectives:
		1. Explain techniques related to the design,
		planning, control and improvement
		of service and manufacturing operations.
		2. Demonstrate basic knowledge of financial
		management practices such as
		cost calculations and accounting processes.
		3. Address issues related to clinic management including, appointment systems
		and record keeping.
		4.Discuss the importance of quality control and
		workflow management.
		5. Apply appropriate inventory management
		protocols
Bachelor in	Management and	6. Understand and discuss the benefits
Prosthetics & Orthotics	Administration	associate with the use of quality
		assurance systems
		7. Understand the organization of the workplace
		environment.

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		The Student should meet the following objective
		 1.Formulate Appropriate Prosthetic and Orthotic Prescription for any range of clinical situation 2.Should represent a case study for any prosthetic case 3.Should give solution for assessment to final prescription for any level of amputation. 4.Casting and measurement techniques, Cast modifications, Fabrication techniques, alignment techniques, Harnessing, Cable control system and suspension mechanisms, Fitting, donning and doffing techniques. Checkout procedures, Testing and Training for any levels of amputation.
		The Student should meet the following objective : 1.Formulate Appropriate Orthotic Prescription for any range of clinical situation 2.Should represent a case study for any orthotic case 2.Give solution for assessment to final prescription for any physical impairment 3.Casting and measurement techniques, Cast modifications, Fabrication techniques, alignment techniques, Fitting, donning and doffing techniques. Checkout procedures, Testing and Training for any orthotic devices.
Bachelor in Prosthetics & Orthotics	Prosthetics Clinical Practice	The Student should be able to meet following objectives : - shall take a project work under 1.supervision of a guide. Project work
Docholor in	Outbaties Olivis -	guide. Project work
Bachelor in Prosthetics & Orthotics	Orthotics Clinical Practice	has to be well documented and presented in
Bachelor in		essay form. The major focus will be trainee's original work which she or he has to
Prosthetics & Orthotics	Project Work	present prior to final examination. The
	1	subject and the guide should be chosen within
		four weeks from the day of admission
	1	to the fourth year.

Dr. Rajesh B. Goel Registrar MGM INSTITUTE OF HELATH SCIENCES (DEEMED UNIVERSITY u/s 3 of UGC Act, 1956) NAVI MUMBAI- 410 209