

**REGULATIONS & COURSES OF STUDIES OF 2 YEARS
MASTER OF PROSTHETICS & ORTHOTICS (MPO): 2023**



**THE ODISHA UNIVERSITY OF HEALTH SCIENCES,
BHUBANESWAR- 751009**

**REGULATIONS & COURSES OF STUDIES FOR THE
2 YEARS MASTER OF PROSTETICS & ORTHOTICS (MPO) DEGREE - 2023**

- 1. Title and commencement of the Program:**
 - (a) These regulations may be called "**Master of Prosthetics & Orthotics** (In short BPO) Regulations 2023".
 - (b) They shall come into force from the current academic year 2023-24.
 - (c) The Regulations and courses of studies prescribed are in conformity with Rehabilitation Council of India and subject to modification by the Academic Council and Executive Board of the Odisha University of Health Sciences, Bhubaneswar from time to time.
- 2. Introduction:** Prosthetics and Orthotics courses instruct students in the principles of formulation of treatment, designing, fabrication and fitting of assertive devices which includes prostheses and orthoses, developing evaluation of fitting, function & follow-up procedures. It combines a unique blend of clinical and technical skills. The rapidly expanding elderly population in need of orthotics and prosthetics care, encroachment by other health care providers delivering orthotics and prosthetics services, the advancement of medicine and technology, and changes in managed health care all highlight the need for responsive, contemporary, advanced orthotics and prosthetics education programs.

The Prosthetics and Orthotics Professionals assess and evaluate patients, prescribe, custom design, fabricate, and fit the orthoses and prostheses. Rehabilitation of persons with locomotor disabilities or neuromuscular disorder is a team work, where Centre of attention is the person with disabilities. They also play an important role in the comprehensive post-surgical management of amputee and other neuromusculoskeletal disorders.

The other, as technology and health care evolve and change, in addition to the increasing encroachment of other health and medical professions, there is an increasing need for orthotic and prosthetic students of the future to keep pace with technology and the competitive health care marketplace.

- 3. Goal:** The goal is to provide better prosthetic and Orthotic care in the treatment of physically challenged in the rehabilitation setting and to provide the students with clinical problems solving skills for lifelong learning combined with advanced biomechanical education.
- 4. Objective:** The objective is designed to augment the knowledge of P&O professionals to work for the problem solving of persons with disabilities in the field of rehabilitation.
 - (i) Patient Care;**
 - a) 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.
 - b) Be competent to take preventive, supportive, corrective and rehabilitative steps in respect to the commonly encountered problems related to prosthetics and orthotics.
 - c) To carry out Evidence Based Practice in prosthetics and orthotics.
 - d) 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.
 - e) Be familiar with the various National policies and Acts related to Persons with Disabilities.
 - f) Acquire basic management & administrative skills in the areas of materials, financial and

human resources related to prosthetics and orthotics.

- g) Develop the communication skills to establish effective communication with the stakeholders.
- h) Practice prosthetics & orthotics ethics in patient care, service delivery, and research.
- i) Develop attitude for self-learning and acquire necessary skills including the use of appropriate technologies.

(ii) Research;

- a) Recognize a research problem.
- b) State the objectives in terms of what is expected to be achieved in the end.
- c) Plan a rational approach with full awareness of the statistical validity.
- d) Spell out the methodology and carry out most of the technical procedures required for the study.
- e) Accurately and objectively record on systematic lines the results and observations made.
- f) Analyze the data using appropriate statistical approach.
- g) Interpret the observations in the light of existing knowledge and highlight in what ways the study has advanced existing knowledge on the subject and what remains to be done.
- h) Draw conclusions which should be reached by logical deduction and he / she should be able to assess evidence both as to its reliability and its relevance.
- i) Write a thesis in accordance with the prescribed instructions.
- j) Be familiar with the ethical aspects of research.

(iii) Teaching: He/ she should be able to plan educational programs in Prosthetics and Orthotics in association with his senior colleagues and be familiar with the modern methods of teaching and evaluation. The candidate should be able to:-

- a) Deliver lectures to undergraduates and hold clinical demonstrations for them.
- b) Write and discuss a seminar or a symposium and critically discuss it with his colleagues and juniors.
- c) Methodically summarize internationally published articles according to prescribed instructions and critically evaluate and discuss each selected article.
- d) Present cases at clinical conference, discuss them with his colleagues and guide his juniors in groups in evaluation and discussion of these cases.

5. Eligibility for admission to the Course:

(i) BPO / B. Sc (P & O) degree or equivalent from any recognized University in India with minimum 50% marks.

(ii) **Physical fitness Certificate:** Every candidate before admission to the course shall be required to submit College Leaving Certificate, Migration Certificate (if applicable) in original, Physical Fitness Certificate and a declaration before the Principal / Director of the Institution that

- (a) I am not continuing in any Degree (Bachelor / Master) Course under any State, Deemed, Central University and Autonomous Body.
- (b) I have not been involved in any kind of criminal and unlawful activities in the past.

Provided further, after fulfilment of all condition (s), the University on receipt of student detail with prescribed fees, shall issue University Registration Number as per OUHS First Statute-2023, which shall be used as Roll Number for all Annual Examination (s).

6. Duration: The duration of the programme is of two academic years, which can be completed in a maximum of four years from the academic year of admission to the programme.

7. **Medium of instruction:** English shall be the medium of instruction for all the subjects of study and for examination of the course.
8. **Commencement of the Course:** The course will commence from August / September 1st of every year.
9. **Academic Year:** The academic year shall be twelve months and commencing on the first day of enrolment into the course.
10. **Attendance:** The component wise attendance percentage shall be as under;

| Subjects | Eligibility criteria |
|---------------------------------------|----------------------|
| Subjects taught in one phase (Theory) | 80 % |
| Practical / Clinical | 90 % |

11. **Course Cycle, Codes and Structure:** The three-year full-time programme consists of two-years. There shall be 9 (Nine) numbers of theory subjects, 06 (Six) Numbers of Practical / Clinical including and a Dissertation in the Second Year. The total marks for the Course is 1600 including the Project.
The total number of digits used in the course is 08 (Eight).
 - i. The 1st two digits (Numerical) indicates the Year of Courses of Studies.
 - ii. The 3rd digit (Letter) indicates the "Faculty" Allied Health Sciences.
 - iii. The 4th & 5th digits (Letters) indicate the Course Code "MPO".
 - iv. The 6th digit (Numerical) indicates the Year.
 - v. The 7th & 8th digits (Letter and Numerical or Numerical and letter) indicate sequence of the year and Theory Subject (s) of the Year or Practical / Dissertation.

Table No 01 Course Structure:

| Code | Title | Contact Hours | | Internal Assessment | | Theory | Practical | Total Marks |
|-------------------|--------------------------------------------------------------|---------------|-----------|---------------------|-----------|--------|-----------|-------------|
| | | Theory | Practical | Theory | Practical | | | |
| First Year | | | | | | | | |
| 23AMPO11 | Advance Lower Extremity Orthotics & Clinical Gait Analysis | 60 | -- | 20 | -- | 80 | -- | 100 |
| 23AMPO12 | Advance Lower Extremity Prosthetics & Clinical Gait Analysis | 60 | -- | 20 | -- | 80 | -- | 100 |
| 23AMPO13 | Research Methodology & Biostatistics | 60 | -- | 20 | -- | 80 | -- | 100 |
| 23AMPO14 | Mechatronics | 60 | -- | 20 | -- | 80 | -- | 100 |
| 23AMPO15 | Applied Biomechanics & Kinesiology | 60 | -- | 20 | -- | 80 | -- | 100 |
| 23AMPOP1 | Clinical Practice- Advance Lower Extremity Orthotics & | -- | 350 | -- | -- | -- | 100 | 100 |

| | | | | | | | | |
|--------------------|---------------------------------------------------------------------------------|------------|------------|------------|-----------|------------|------------|------------|
| | Clinical Gait Analysis | | | | | | | |
| 23AMPOP2 | Clinical Practice- Advance Lower Extremity Prosthetics & Clinical Gait Analysis | -- | 350 | -- | -- | -- | 100 | 100 |
| Total | | 300 | 920 | 100 | -- | 400 | 200 | 700 |
| Second Year | | | | | | | | |
| 23AMPO21 | Advance Upper Extremity Prosthetics | 60 | -- | 20 | -- | 80 | -- | 100 |
| 23AMPO22 | Advance Upper Extremity Orthotics | 60 | -- | 20 | -- | 80 | -- | 100 |
| 23AMPO23 | Advance Spinal Orthotics | 60 | -- | 20 | -- | 80 | -- | 100 |
| 23AMPO24 | Pedagogy in P & O Education & Administration, Management & Ethical Issues | 80 | -- | 20 | -- | 80 | -- | 100 |
| 23AMPOP3 | Clinical Practice- Advance Upper Extremity Prosthetics | -- | 200 | -- | -- | -- | 100 | 100 |
| 23AMPOP4 | Clinical Practice- Advance Upper Extremity Orthotics | -- | 160 | -- | -- | -- | 100 | 100 |
| 23AMPOP5 | Advance Spinal Clinical Practice- Orthotics | -- | 200 | -- | -- | -- | 100 | 100 |
| 23AMPO2D | Dissertation | -- | 400 | -- | -- | -- | 200 | 200 |
| Total | | 260 | 960 | 80 | -- | 320 | 500 | 900 |

12. Plan of Studies (Teaching, Training & Practice): The plan of studies consists of classroom lectures, practical and laboratory demonstrations, bed side clinics, self-directed academic activities and clinical postings.

12.1. First Year: In first year, the student shall undertake studies in Advance teaching and practice in Lower Extremity Orthotics & Clinical Gait Analysis, Advance Lower Extremity Prosthetics & Clinical Gait Analysis, Research Methodology & Biostatistics, Mechatronics, Applied Biomechanics & Kinesiology, and clinical in Advance Lower Extremity Orthotics & Clinical Gait Analysis and Advance Lower Extremity Prosthetics & Clinical Gait Analysis.

Further, at the commencement of instructions, a guide for the dissertation will be allocated to the candidate, who shall have to select a topic in his / her area of interest, in consultation with the supervisor / guide, qualified for the purpose as recognised by the University for and carry out an independent dissertation, which will involve making research proposal, conduct of the work as the documented methodology, statistical analysis, dissertation writing. The work will build on the knowledge acquired through study of research methodology and Biostatistics.

S/he shall prepare the Research proposal (Synopsis) and present the same in the Seminar / Ethics committee for approval at the end of the first year. The Ethics Committee shall be constituted with

the Head of the Institution as its Chairman, Head of the Department- Member convener, and regular faculties of the department shall remain as its members.

In addition, a student shall compulsorily fulfil minimum Two Seminar Presentation, Two Journal Club, and Five Case Study presentations.

12.2. Second Year: In the second year, s/he will be required to undertake teaching and practice in Advance Upper Extremity Prosthetics, Advance Upper Extremity Orthotics, Advance Spinal Orthotics, Pedagogy in P & O Education & Administration, Management & Ethical Issues, Advance Upper Extremity Prosthetics, Advance Upper Extremity Orthotics, Advance Spinal Orthotics.

During the clinical practice Upper Extremity Prosthetics, the student must be able to assess, diagnose, plan and execute the prosthetic treatment for children and adults with various amputation (congenital and acquired), maintain clinical record of minimum 20 patients with various amputation (congenital and acquired), use of instrumentation in minimum 10 patients with amputation (congenital and acquired) and plan and execute in minimum 5 patients with amputation (congenital and acquired). In Upper Extremity Orthotics, the student should be able to assess, diagnose, plan and execute the orthotic treatment for children and adults with various disorders/deformity, maintain clinical record, assessment of minimum 20 patients with various disorders/deformity, use of instrumentation in minimum 20 patients with disorders/deformity and plan and execute in minimum 5 patients in each category. And, in Spinal Orthotics, the student should be able to assess, diagnose, plan and execute the treatment for children and adults with various disorders/deformity of spine, maintain clinical record, assessment of minimum 20 patients with various disorders/deformity, use of instrumentation in minimum 20 patients with disorders/deformity and plan and execute in minimum 5 patients in each category.

In addition, a student shall compulsorily fulfil minimum Two Seminar Presentation, Two Journal Club, and Five Case Study presentations. Besides, s/he shall complete her / his dissertation, and submit to the Head of the Department 2 (Two) months before the scheduled month of Examination prescribed in the Academic Calendar of the University.

12.3. Practicum: During the courses of two years studies, the student should be able to meet the following learning objectives:

- (i) Assess the medical condition of a patient related to their orthotic or prosthetic management using appropriate investigative techniques which include patient history taking and clinical testing.
- (ii) Formulate an optimal prosthetic and orthotic solution using information from the patient assessment, other members of the health care team, medical charts, etc.
- (iii) Communicate and discuss patient goals and expectations and discuss and debate the prosthetic management with the patient, co-workers and other members of the health care team.
- (iv) Reliably measure and capture a positive cast or image of patient / clients' appendage while correctly positioning the body part and if appropriate apply the necessary corrective force system.
- (v) Identify, prescribe and justify selection of appropriate materials and componentry in the fabrication of the prostheses or orthoses.
- (vi) Construct the prostheses or orthoses using appropriate fabrication techniques in preparation for the initial fitting.
- (vii) Fit the prostheses or orthoses to the patient using static and dynamic functional criteria

established from the original assessment.

- (viii) Evaluate the quality of the prostheses or orthoses fit to ensure the appropriate interface contouring, force application and trim lines.
- (ix) Identify problems related to device fit and/or alignment and be able to suggest and implement appropriate correction.
- (x) Assess and solve prosthetic or orthotic problems as part of long-term patient care.
- (xi) Maintain accurate records of patient treatment and follow up as well as confidentiality of such information.
- (xii) Communicate effectively with patient, co-workers, and other health care professionals in such a manner that will ensure the highest quality of service and reflect a professional attitude on the part of the student.
- (xiii) Educate the patient /client and/or caregiver on use, care and function of the prostheses or orthoses.
- (xiv) Understand the methodology of problem identification, problem solving in a process that includes all stakeholders, with the patient at the centre.

13. Scheme of Internal Assessments, Theory, Practical / Clinical, Assignment and passing criteria:

13.1. Theory: Twenty per cent of the marks (20 marks) for each theory paper shall be given on the basis of internal assessment as follows.

- (i) Five marks for attendance,
- (ii) 15 marks for Assessment which shall consist of two class tests, one assignment, and one seminar (Tests shall be conducted for 25 marks in both the occasions, and assignment and seminar will carry 25 marks each. The final marks shall be converted to 20 % weightage).

13.2. Practical / Clinical: The Internal Assessment will be based on performance of the candidate during the year. Examination for clinical practicum will be held along with theory papers by the university. At the end of 1st and 2nd years internal viva voice exam will be carried out for award of internal assessment for clinical work performed throughout the year.

13.3. At the time of practical examination, each candidate shall submit to the examiners his / her note books duly certified by the Clinical Teacher / Head of the Department as a bonafide record of the work done by the candidate.

13.4. The practical record shall be evaluated by the concerned Head of the Department / Therapist (Internal Evaluator) and the practical record marks shall be submitted to the University 30 days prior to the commencement of the theory Examinations. In respect of failed candidates, the marks awarded for record at previous examination will be carried over for the subsequent examination.

13.5. Participation in academic activities:

a) Assignment: It is an individual task and takes the form of written work. The topic is assigned by the course instructor pertinent to their current course. The topics for the assignment comprise of writing essays/or reports on topics that:

- involve a critical component and have debatable / opposing views
- Is a new development / or opinion pertinent to the curriculum but not included in the syllabus yet
- Involves to collect, synthesize and draw conclusions of the information collected from literature.

- b) **Seminar:** It is a group activity, consisting of two students in a group. The groups may be constituted randomly or by the choice of the students. These are to encourage verbal communication skills in students and also to assess organization and creativity.
- c) **Journal Club:** A journal club is a form of meeting regularly held among health practitioners to discuss recently published literature. The articles are chosen based on clinical questions arising from clinical practice. Discussions include the critical appraisal of methodological aspects of the study and whether the findings would modify clinical practice.
- d) **Case Study Presentations:** Presentations offer a multifaceted assessment platform. They not only gauge students' depth of subject knowledge but also hone their verbal communication, organization, and public speaking abilities, fostering well-rounded development. It demonstrates their ability to gather information, diagnose, and recommend appropriate solutions.

14. Eligibility criterions for appearing University Examinations:

A candidate shall be eligible to carry forward all the courses if a s/he fulfills the following criterions and hereafter prescribed under Regulation 18.1.

In addition,

- (i) Attended 75 % theory and 80% practical classes,
- (ii) Passed in Internal Assessment (s),
- (iii) Fulfilled two seminar presentations, two journal club, and five case study presentations.
- (iv) 50% of Marks in the Internal Examination,
- (v) Synopsis has been approved by the Departmental Research & Ethics Committee during 1st year, and submission of Dissertation Report in the Second year, and
- (iv) Not been debarred for any objectionable mis-conduct or malpractice by the Institution, and University.

15. Examinations [Annual University (Theory & Practical)]:

15.1. There shall be annual examination at the end of each academic year. A candidate shall register for all papers of a year when he/she appears for the examination of that year for the first time.

Provided, the College / Institution shall submit the internal marks to the University before registering the eligible students for appearing annual examinations of the year as per Academic Calendar of the University. In the event, a College / Institution fail or does not submit the mark (s) before the cut-off date, it shall be treated that no examination (s) have been conducted, and thereby the students shall not be allowed to register for Annual Regular Examinations.

15.2. Theory examinations: Each theory paper of the examinations carrying 80 marks and conducted by the University shall be valued by one external examiner. Marks rounded to the next integer shall be awarded to the candidate.

15.3. Practical Examinations: First, and Second Year: The University practical / clinical Examination (s) carrying 100 (One Hundred) marks shall be conducted by one internal examiner and one external examiner (s) appointed by the University.

16. Registration: A candidate shall be eligible to register for Annual (Regular / Back) Examination only when s/he has fulfilled college and corresponding university criterions.

- (i) The College / Institution shall register the subjects of eligible students with the University

on payment of a fee as notified by the University towards conduct of Regular / Back Theory examinations. The College / Institution shall retain 15% of the University Examinations fees to meet the expenditure of Examination Centre. However, such retention of fees shall not be applicable in case of Back Paper or Supplementary Examinations.

(ii) The College / Institution shall follow uniform Question pattern / template / Answer Booklets and Records for conducting Internal Assessment and Practical Tests.

17. Passing Heads: The passing head (Theory and Practical / Practicum) is as under;

(i) A Student is required to obtain a minimum of 50% in each of the theory papers, internal assessment, practical and clinical exams for a pass.

(ii) A Students will not be able to appear for University theory exam if s/he has not passed in his / her internal assessment, practical or clinical component (s).

(iii) A Students will have to appear and pass the clinical examination (s) of the given year to proceed to the next year.

(iv) A student shall be declared to have passed the examination if he/she obtains the following minimum qualifying marks: -

(a) 50% of Marks in Internal Assessment (I.A) – Theory & Practical / Clinical.

(b) 50% of Marks in the University Practical / Clinical Examination.

(c) 50% of Marks in the University Theory Examination.

18. Promotion to Higher Year, Re-admission after discontinuation or Break of Study into the Course:

18.1. (a) A candidate shall be permitted to undergo his / her study in the second year; if he / she has registered and appeared all papers in the first year Annual Examinations.

Provided further if a student registered, and did / could not appear any of the theory examination (s) without a genuine and extraordinary reason, in such case; the case shall be referred to the Controller of Examination of the University whose decision shall be final and binding.

(b) Each candidate will be given maximum 4 attempts in the tenure to clear the annual theory or practical / clinical examination. However, absent or non-registration for availing a chance, shall be treated as a chance.

18.2. A candidate will be allowed for re-admission;

a) If s/he did / could not register for the annual examinations.

b) If a candidate, failed any theory / practical / clinical University examinations availing three chances, s/he shall be required to take re-admission

c) if the candidate is eligible, and has permissible tenure to complete the remaining tenure / years of six year to complete the course.

Provided further, s/he shall be required to apply in the prescribed form with fees as prescribed for the purpose, and shall be admitted in the course in force (Dual Syllabus).

19. Supplementary Examination: There will be a supplementary examination for final year theory subjects within three months from the date of publication of second year examination to extend a chance to clear the failed theory subjects of second year if any only. However, a candidate shall not be eligible; if s/he has not registered for the 2nd Year Annual Examinations, and accordingly has not appeared the 2nd years annual University Examination.

A student having more backlog after availing the chance, shall not be allowed to re-appear in the subsequent years Supplementary Examination meant for the regular final year students only. Such

student (s) will be allowed to re-appear back theory subjects only with the student in Regular Examinations.

20. Classification of successful candidates and award of Degree: The University shall adopt Marking and division practice.

20.1. Candidate will be awarded division after successful completion at the end of two years. The percentage of marks will be calculated from aggregate of total marks obtained in both years University examinations.

- (i) First Division - 60% and above in the aggregate marks of all subjects.
- (ii) Second Division – 50% or more but less than 60% in the aggregate of marks of all subjects.

20.2. A candidate will be awarded Degree in Master in Prosthetics & Orthotics (M.P.O.) to a candidate who complete the prescribed period, two academic years courses of Studies, and has passed in all subjects (Theory & Practical / Clinical).

21. Record and Evaluation Guidelines: The Practical Answer Booklet, Project Assignment / Record Book shall be as per the guidelines to be issued in this regard shall be strictly followed by the Examiners while assessing a practical component.

22. Withdrawal from Course, Struck off from the rolls of the College / Institution Admitted and withdrawal of Degree:

22.1. The University upon application, shall cancel the registration number issued to the candidate, and issue migration certificate on payment of fee as to be prescribed by the University.

22.2. Any student who does not clear the Master of Prosthetics & Orthotics Course in all the subjects within a period of 4 years from the academic year shall be discharged from the course.

22.3. Any student found to have obtained admission in fraudulent manner, if the documents furnished for gaining admission by any student are found to be forged / false / doctored at any stage of study.

22.4. If any student is found to be involved in serious breach of discipline.

22.5. A degree awarded by the University may be withdrawn if it is found at the later stage that the candidate has submitted any forged document or ineligible at the time of admission to the course.

23. Medal (s), Award (s) & Prize (s): The University shall notify as and when decided by the Academic Council and Executive Body from time to time.

24. Discretionary Power: Notwithstanding anything contained in the above, in case of any doubt or difficulty as to the interpretation of these Regulation (s), the matter shall be referred to the Vice Chancellor and his / her decision in this behalf, subject to the provisions of the OUHS Act - 2021, and OUHS 1st Statute - 2023 shall be final.

Annexure- A (Series)

Registration no:

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|--------------------------------------------------------------------------------------------|----------------------------------------------|
| Total Number of Pages: (XX) | Course: MPO |
| | SUB_CODE: |
| (... th) Year Regular / Back / Supplementary Examination: 20 | |
| SUBJECT NAME: | |
| BRANCH: | |
| Max Time: 3 Hours | Sitting: 1 st 10.00 AM to 1.00 PM |
| Max Marks: 80 | |
| Q. CODE: (To be allotted by the University) | |
| All Questions are compulsory. Illustrate answer with diagrams wherever relevant / required | |
| The figures in the right-hand margin indicate marks. | |
| Answer any five out of seven and Q 8 compulsory | |
| Q 1 | |
| Q 2 | |
| Q 3 | |
| Q 4 | |
| Q 5 | |
| Q 6 | |
| Q 7 | |
| Q 8 | Short Answer Questions |
| a) | |
| b) | |
| c) | |
| a) | |
| b) | |

