



Model Course Curriculums for Undergraduate Level

Disaster Risk Reduction and Management

**India Universities and Institutions Network
(IUINDRR - NIDM)**

2021

National Institute of Disaster Management

(Ministry of Home Affairs, Government of India)



Model Course Curriculums for Undergraduate Level

Disaster Risk Reduction and Management

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National Institute of Disaster Management (NIDM)
(Ministry of Home Affairs, Government of India)

Plot No. 15, Pocket 3, Block-B, Sector-29, Rohini, Delhi-110042
Website: <https://nidm.gov.in>



Maj Gen Manoj Kumar Bindal
VSM

Executive Director



राष्ट्रीय आपदा प्रबंधन संस्थान
(गृह मंत्रालय, भारत सरकार)
National Institute of Disaster Management
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Rohini, Delhi-110042



FOREWORD

Education is an instrument in building the knowledge, skills, and attitudes necessary to prepare for and to cope with disasters, as well as in helping learners and the community to return to a normal life. The increased exposure of countries to both natural and human induced hazards poses a threat to lives and sustainable development efforts. By 2030, India is committed to reduce the disaster impact on life and property to its minimum and hence has given its global commitment for achieving the set targets and goals of Sendai framework by 2030. This is possible when we build capacity of students on DRR so that the impact of future disasters can be minimized. Hence, there is need of compulsory paper/ curriculum that include elements of disaster risk reduction to build the knowledge, skills and capacity of the young generation.

The impact of disaster is so deep that it cannot be ignored by the society. To build the capacity of the youth and community preparedness, UGC has also issued the guidelines to universities to implement course/ curriculums as a compulsory subject at undergraduate level. There ought to be dynamic curriculums with necessary additions which may be included in all the streams of higher education and also help students to choose career paths in the field of Disaster Management at Undergraduate level.

In this direction and being a premiere institute of Government of India in the field of Disaster Management, The National Institute of Disaster Management, Ministry of Home Affairs, Government of India by its initiative of India Universities and Institutions Network on Disaster Risk Reduction (IUIDRR-NIDM), initiated a step by realizing the need in this context and in relevance to its mandate of coordinating and maintaining standard of higher education, decided to adopt a pro-active role to facilitate and to ensure that the curriculums on DRR may be implemented by the UGC to build the capacity on DRR through its Higher Educational bodies across the country.

To capture experience and knowledge at National level, IUIDRR-NIDM had invited nominations from across the country and Curriculum Development Committee was constituted with the respective Convener as its member. The Committee comprised of subject experts not only in the field of disasters but also from different backgrounds drawn from the university system, was given a wider representation of various sub subject experts. The Committees, therefore, had representations from across the country and had many meetings before lineal updated Model Curricula were presented to UGC.

The National Institute of Disaster Management and IUIDRR-NIDM are grateful to the nodal persons, a large number of permanent and co-opted members in different subjects and their sub disciplines for having worked seriously with committed devotion to produce a Model Curricula as a compulsory paper on Disaster Risk Reduction (Foundation Course) and Certificate Programme at UG Level within a record period of 5 months.

The exercise would not have been possible without the support of our entire academic community. We can only hope that the results will fulfil their expectations and also those of the university community and Indian society.

The Model Curricula have been produced to take care of the new concepts, skills and to build the capacity of students towards the disaster preparedness and management.

The recommendations have been compiled by the panel of experts drawn from across the country. They have attempted to combine the practical requirements of teaching in the Indian academic context with the need to observe high standards to provide knowledge in the frontier areas discipline. It has also been aimed to combine the goals and parameters of global knowledge with pride in the Indian heritage and Indian contribution in this context. Today entire knowledge is interdisciplinary. This has been duly considered. Flexible and interactive models have been presented for the universities to extend them further as they would like. Each institution may have to work out certain uniform structures for courses at the same level, so that effective interaction between subjects and faculties is possible. The tendency across the country is now to move from the annual to the semester system, and from award of marks to award of credits. There is perceptible growing interest in modular framing as well.

The recommendations, while taking all these features into account, have also made provisions for institutions who may not be in a position to undertake radical structural reform immediately. In any country, especially one as large and varied as India, academic institutions must be allowed enough autonomy and freedom of action to frame courses according to specific needs. The structure of the curriculum is 60 percent in the form of compulsory and standardized module and rest as per regional needs of disaster management for foundation course at UG level.

The certificate Programme in Disaster Risk Reduction and Management will be offered in first year of under graduate degree programme. Certificate programme has been designed to develop the skills required for careers in Disaster Management. The student may exit from the first-year programme of under graduate degree with the requirement of minimum credits and may be awarded the Certificate in DRRM. It may be offered as an independent programme or as per university requirement. All the curricula are designed in the line of New Education Policy, 2020 and as per UGC guidelines.

The recommendations of the Curriculum Development Committees and experts across the country under the IUINDRR-NIDM are meant to reinforce this. The purpose of our exercise has been to provide a broad common framework for exchange, mobility and free dialogue across the entire Indian academic community. These recommendations are made in a spirit of working together in the field of disaster management in India.

To meet the need and requirement of the society and in order to enhance the capacity of youth and standards of education, new curriculum and updation of existing curriculum must continue as a perpetual process. Accordingly, NIDM constituted the Curriculum Development Committees. If you need to seek any clarification, you may contact Major General Manoj Kumar Bindal, Executive Director, NIDM and secretariat of IUINDRR-NIDM who shall accordingly respond to you after due consultation with the respective experts of the working group.

The National Institute of Disaster Management, Ministry of Home Affairs, Government of India feels immense pleasure in forwarding these Model Curriculums to the UGC with a request to get its copies made to be forwarded also to the concerned Deans and Head of Departments requesting them to initiate courses on disaster risk reduction and management at undergraduate level.

The NIDM Model curriculums are being presented to the Registrar of the university with options either to adopt it as a Foundation Course module of undergraduate degree to every stream/subjects. They may adopt certificate course curricula as per suggestive model curriculums at First year undergraduate degree programme or may adopt after making necessary amendments or to adopt it after necessary deletion/ addition or to adopt it after making any changes whatsoever which the university may consider right. This NIDM Model Curriculums have been provided to the universities only to serve as a base and to implement Disaster Risk Reduction as a part of higher education in India.

May I request UGC chairman to kindly circulate present curriculums on DRR in consultation with Model Curriculums provided here.

NIDM looks forward for your collaboration in this joint venture to mainstream Disaster Risk Reduction at higher education level to achieve the National objective of agenda 6 of Hon'ble Prime Minister of India's 10 point for DRR.



(Manoj Kumar Bindal)

Acknowledgement

The India Universities and Institutions Network - National Institute of Disaster Management (IUIINDRR-NIDM), express our gratitude & heartfelt thanks to Hon'ble Minister of State for Home Affairs **Shri Nityanand Rai** and officials of DM Division, Ministry of Home Affairs, Government of India for encouraging and guiding NIDM for taking such initiatives.

We are grateful to the Secretary General, Association of Indian Universities, New Delhi, for providing guidance and support in this important initiatives. We are obligated to the Vice Chancellors of Central University of Rajasthan; Central University of Kerala; Noida International University, Uttar Pradesh; Dr. Bhim Rao Ambedkar University, Agra, UP; DADA Ramchand Bakhru Sindhu Mahavidyalaya, Nagpur University; Institute of Rural Development & Panchayati Raj, Hyderabad, Ministry of Panchayati Raj and Rural Development GOI; Manipur Technical University; Manipur; Symbiosis International University, Pune; and Shri Ramswaroop Memorial University, UP; who had nominated their experts to provide their valuable knowledge and experiences for the development of syllabus on DRRM for Higher Education in India.

We extend our sincere thanks to all the subject Experts and Members of the Core Committee for the Curriculums Development in Disaster Risk Reduction and Management for their cooperation and help in formulating the new Syllabus. Thanks, are especially due to other expert members for sparing their valuable time and giving their expertize for the initiative. It was only through the technical inputs given by the participating members that the present curriculums could be formulated within the stipulated time frame.

We are also thankful to all the experts from 18 universities/institutions across the country who had given their inputs and helped in finalization of the course curriculum i.e, *Jawaharlal Nehru University, New Delhi; SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu; JTSDS, Tata Institute of Social Sciences, Maharashtra; Central University HNB Garhwal, Uttarakhand; Aligarh Muslim University, Aligarh, UP; Jamia Millia Islamia, New Delhi; Dr. Rajendra Prasad Central Agricultural University, Pusa, Bihar; Birla Institute of Technology, Noida, UP; Karnataka State Rural Development and Panchayat Raj University, Gadag; Kurkshetra University, Haryana; Pondicherry University, Andaman & Nicobar; Central University of Jammu, J&K; National Institute of Rural Development and Panchayati Raj, Ministry of Rural Development, Gol; BL Amlani College of Commerce and Economics, University of Mumbai; Vishwakarma University, Pune; Yenepoya Medical College, Mangaluru, Karnataka; Shri Ramswaroop Memorial University, Lucknow, Uttar Pradesh; Dr. Bhim Rao Ambedkar University, Agra, UP.* Surely, proposed curriculums will create the pool of trained professionals in near future in the field of disaster risk reduction and its management in India.

Special thanks to faculties of NIDM for their time-to-time feedbacks and suggestions on the said task. Last but not the least, we would like to give special thanks to Major General Manoj Kumar Bindal, Executive Director, NIDM for recognizing the need of developing the curriculum at university's level in the field of DRRM and for providing support to the Core Committee Members for this imperative initiative. We are obligated for his immense support.



Dr. Preeti Soni
(Nodal Officer)
Sr. Programme Consultant
(IUIIN-DRR)



Shri Shekher Chaturvedi
(Core Committee Member)
Assistant Professor, NIDM



Prof. Santosh Kumar
(Core Committee Member)
Head, GIDRR and Program Director

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Preamble

Need of a New Syllabus

India is the fifth most vulnerable country in terms of climate change, according to the Global Climate Risk Index report 2020. In recent years, earthquakes, cyclones, floods, landslides and forest fires have become frequent across the country. Given the severe impact of the climate emergency on economic and social development of vulnerable communities, especially the poor, it is important to build resilience. It has been noted that children and women are most adversely affected by natural hazards, suffering both physical and mental trauma. Further, collapse or severe damage to infrastructure such as school / college buildings during a disaster disrupts the education and employment process. Limited access to higher degree also results in a large number of students dropping out or losing interest in education due to which the rate of unemployability is increasing. However, education prepares vulnerable communities how to cope with such events. Introducing disaster management in the course syllabus at Higher education's curriculum should be prioritized. Students must learn about disaster management and need to adopt a creative approach which help to familiarize them with their surroundings and provide insights into disaster risk reduction and preparedness measures, emergency relief and long-term recovery. This will establish an active, experiential and participatory learning process between learners and institutions to develop the concept of resilience and how to anticipate, absorb and adapt to disaster events. Thus, the curriculum has a hybrid approach where traditional wisdom and local knowledge can be used to prevent and mitigate social, economic and psychological effects of natural and human induced hazards. Hence, present curriculums has elements of disaster risk reduction to build the knowledge, skills and capacity at UG level.

Need for Disaster Risk Reduction syllabus at Higher Education

According to the survey in 2019, the highest number of students are enrolled in undergraduate courses across the country. Out of the total enrolment of 3,73,99,388 students, a vast majority of 2,98,29,075 students are enrolled in UG programs*. This is just more than the total strength of Indian Armed Forces active personnel, which is about 1.4 million, it is the world's second-largest military force and has the world's largest volunteer army. Therefore, there is a need to prepare/trained students as a task force, not only as an intellectual but also as a professional in the field of disaster management.

Hence, IUINDRR-NIDM, which is an initiative under the Agenda 6 of 10 point of Hon'ble Prime Minister of India, took a step towards formulation of course/paper curriculum that has included elements of disaster risk reduction to build the knowledge, skills and to build capacity of the maximum young population in India. In this direction, UGC also issued

* All India Survey on Higher Education (AISHE) report (2019-20)

Notification vide No.24-II2016 (CPP-II), dated 4th October, 2017 to implement the compulsory paper on disaster management for all undergraduate students.

In view of the need of a model syllabus for Disaster Risk Reduction, curriculum has incorporated 3 credit, including 3 module on the subject. The structure of the curriculum is 60 percent in the form of compulsory module and rest as per regional issues related to disaster in the respective regions of India.

The curriculum will be offered in the IVth semester under foundation course as per UGC guidelines and will be integrated in every stream of the undergraduate programme. The curriculum supporting study/reference material for academicians to build their capacity on the issue. Contemporary issues, like pandemic, human induced hazards, stress management, psycho social care, financial resilience and disaster, remote sensing and GIS, new technology for early warning signs, DM plan and practical knowledge through field exposure / community visits is the part of the assessment criteria.

The Certificate Programme in Disaster Risk Reduction and Management has been designed to develop the skills required for career in disaster management. The certificate programme is designed in such a way so that after the completion of first year of undergraduate degree, students will get certificate on DRRM (if exit) and after two years will get degree in specialized field related to Disaster Management. The student may choose to exit after one year with certificate programme and may rejoin the second year of the UG degree in any specialized field related to Disaster Management within the next specified periods by the UGC.

Mechanism of Consultations

To capture experiences and knowledge at National level, IUINDRR-NIDM has invited nominations from across the country and constituted a working group/committee for the development of zero draft of curriculum on DRR for UG level. In second stage, suggestions on the zero draft prepared by core working group member committee on disaster risk reduction were invited from expert's members of IUINDRR-NIDM from different parts of the country. This exercise was undertaken to get feedback from a wider cross section of the academia and organizations across the Nation. Constructive responses were received from 18 universities/institutions members of IUINDRR-NIDM, which has been incorporated for final syllabus of the curriculum on Disaster Risk Reduction.

Participants in Curriculum Development Committee (CDC) Meetings

Meetings of the C.D.C. for Disaster Risk Reduction were held on the virtual mode between June to October, 2021. These meetings were attended by experts representing different University and branches of higher education where they deliberated upon all aspects of Disaster Risk Reduction Curricula and identified the important topics which may taught as a compulsory mode in every stream of the higher education and Certificate programme at Undergraduate level. These experienced experts, mostly drawn from leading teaching institutions/universities and National Institute of Disaster Management, those have remained part and parcel of our present educational system and having knowledge of contemporary issues of disaster management in India. Considering the fact that every region of India having different issues related to disaster and its management, an attempt has been made by the

NIDM and present Committee to provide flexibility to university to implement the issues related to its region or requirement. Hence, a model syllabus has been developed to build the capacity of the students at undergraduate level in the field of Disaster Management. The meetings were held at different intervals in order to concentrate on specific module in each meeting and consultation held with the larger group of academia to finalize the courses.

Members of Working Group for Certificate Programme on DRRM

1st Meeting

Dr. (Mrs.) Pankaj Mittal, Secretary General, Association of Indian Universities, New Delhi.

Major General Manoj Kumar Bindal, Executive Director, National Institute of Disaster Management, Ministry of Home Affairs, GOI.

Prof. Santosh Kumar, Head, GIDRR, National Institute of Disaster Management, MHA, GOI.

Prof. Masood Ashan Siddiqui, Head, Department of Geography, Jamia Millia Islamia, New Delhi.

Prof. Anoop Kumar Bhartiya, Head, Department of Social Work, University of Lucknow, Uttar Pradesh.

Prof. Durgesh Nandini, Department of Public Administration, Indira Gandhi National Open University, New Delhi.

Prof. Geetha Bhavani, Head, Department of Chemistry, Noida International University, UP.

Dr. Mary Angeline Santhosam, Principal, Nazareth College of Arts and Sciences, Thiruvallur, Tamil Nadu.

Dr. K.S. Vignesh, School of Public Health, SRM Institute of Science and Technology, Chennai, Tamil Nadu, India.

Prof. Manoj Kumar Singh Rathore, DDU Institute of Rural Development (IRD), Dr. Bhim Rao Ambedkar University, Agra, UP.

Shri Shekher Chaturvedi, Assistant Professor, National Institute of Disaster Management, MHA, GOI.

Dr. Preeti Soni, Senior Programme Consultant, IJINDRR-NIDM, National Institute of Disaster Management, MHA, GOI.

2nd Meeting

Prof. Anoop Kumar Bhartiya, Head, Department of Social Work, University of Lucknow, Uttar Pradesh

Prof. Durgesh Nandini, Department of Public Administration, Indira Gandhi National Open University, New Delhi

Prof. Geetha Bhavani, Head, Department of Chemistry, Noida International University, UP

Dr. Mary Angeline Santhosam, Principal, Nazareth College of Arts and Sciences, Thiruvallur, Tamil Nadu

Prof. Manoj Kumar Singh Rathore, DDU Institute of Rural Development (IRD), Dr. Bhim Rao Ambedkar University, Agra, UP

Dr. K.S. Vignesh, School of Public Health, SRM Institute of Science and Technology, Chennai, Tamil Nadu, India.

Prof. Santosh Kumar, Head, Governance & Inclusive DRR Division (GIDRR), National Institute of Disaster Management, MHA, GOI

Shri Shekher Chaturvedi, Assistant Professor, National Institute of Disaster Management, MHA, GOI

Dr. Preeti Soni, Senior Programme Consultant, IUINDRR-NIDM, National Institute of Disaster Management, MHA, GOI

3rd Meeting

Prof. Masood Ashan Siddiqui, Head, Department of Geography, Jamia Milia Islamia, New Delhi.

Prof. Anoop Kumar Bhartiya, Head, Department of Social Work, University of Lucknow, Uttar Pradesh.

Prof. Geetha Bhavani, Head, Department of Chemistry, Noida International University, UP.

Dr. Mary Angeline Santhosam, Principal, Nazareth College of Arts and sciences, Thiruvallur, Tamil Nadu.

Dr. K.S. Vignesh, School of Public Health, SRM Institute of Science and Technology, Chennai, Tamil Nadu, India.

Prof. Santosh Kumar, Head, GIDRR, National Institute of Disaster Management, MHA, GOI.

Shri Shekher Chaturvedi, Assistant Professor, National Institute of Disaster Management, MHA, GOI.

Dr. Preeti Soni, Senior Programme Consultant, IUINDRR-NIDM, National Institute of Disaster Management, MHA, GOI.

Members of Working Group for Foundation Course on DRR

Prof. Subhasis Bhadra, Head, Department of Social Work, Central University of Rajasthan.

Dr. Kiran Jalem, Assistant Professor, Centre for Natural Resource Management, Climate Change & Disaster Mitigation, National Institute of Rural Development & Panchayati Raj, Hyderabad, Ministry of Rural Development, GOI.

Dr. Naveen Mahesh Kumar Aggarwal, Registrar, DADA Ramch and Bakahru Sindhu Mahavidyalaya, Nagpur, Maharashtra.

Dr. Kosygin Leishangthem, Assistant Professor, Department of Civil Engineering, Manipur Technical University, Meghalaya.

Dr. Dharmaveer Singh, Assistant Professor, Symbiosis Institute of Geoinformatics, Symbiosis International, Pune, Maharashtra.

Dr. Amit Sinha, Assistant Professor, Institute of Management, Commerce and Economics, Shri Ramswaroop Memorial University, Lucknow, Uttar Pradesh

Prof. Santosh Kumar, Head, GIDRR, National Institute of Disaster Management, MHA, GOI.

Shri Shekher Chaturvedi, Assistant Professor, National Institute of Disaster Management, MHA, GOI

Prof. P. Partheesh, Assistant Professor, Central University of Kerala, India

Dr. Preeti Soni, Senior Programme Consultant, IUIINDRR-NIDM, National Institute of Disaster Management, MHA, GOI.

Consultation with academia/IUIINDRR-NIDM members

Apart from formal meetings, ideas were exchanged over e-mail with large number of experts and their suggestions have been incorporated in the final report. Informal discussion and exchange of notes with some members (Prof. Subhasis Bhadra, Central University of Rajasthan; Dr. Vignesh K.S, Tamil Nadu & Dr. P. Partheesh, Central University of Kerala) was of great help in formulating the present syllabi. The wisdom contained in the new Syllabus was under the stewardship of Major General Manoj Kumar Bindal, Executive Director, National Institute of Disaster Management, New Delhi.

Contribution by

Prof P K Joshi, Chairperson SCDR, Jawaharlal Nehru University, New Delhi.

Prof. R Sivakumar, Department of Civil Engineering & Coordinator Earthquake Research Cell, SRM Institute of Science and Technology, Kattankulathur, Tamil Nadu.

Prof. Jacquleen Joseph, Department of Disaster Management, JTSDS, Tata Institute of Social Sciences, Maharashtra

Prof. Mohd. Masroor Alam, Department of Civil Engineering, Aligarh Muslim University, Aligarh, UP

Prof. Masood Ahsan Siddiqui, Head, Department of Geography, Jamia Milia Islamia, New Delhi.

Prof. Ratnesh Kumar Jha, Agronomy and Project Director, Centre for Advance Studies on Climate Change, Dr. Rajendra Prasad Central Agricultural University, Pusa, Bihar.

Prof. A.P. Krishna, Department of Disaster Management, Birla Institute of Technology, Noida, UP.

Dr. Suresh Lamani, Programme Coordinator, M.Sc. Department of Geoinformatics, Karnataka State Rural Development and Panchayat Raj University, Gadag.

Prof. Omvir Singh, and Chairman, Department of Geoinformatics, Kurkshetra University, Haryana.

Dr. K. Dharanirajan, Head, Department of Disaster Management, Pondicherry University, Andaman & Nicobar.

Dr. Vinay Kumar, Assistant Professor, Department of Social Work, Central University of Jammu, J&K.

Dr. Kiran Jalem, Assistant Professor, Centre for Natural Resource Management, Climate Change & Disaster Mitigation, National Institute of Rural Development and Panchayati Raj, Ministry of Rural Development, Gol.

Dr. Jitendra Aherkar, Principal of Women College, BL Amlani College of Commerce and Economics, University of Mumbai.

Prof. Shraddha Khamparia, Head, Department of Water, Sanitation and Hygiene, Vishwakarma University, Pune, India.

Prof. Poonam R Naik, Head, Community Medicine, Yenepoya Medical College Yenepoya Medical College, Yenepoya (deemed to be University), Mangaluru, Karnataka.

Dr. Amit Sinha, Assistant Professor, Institute of Management, Commerce and Economics, Shri Ramswaroop Memorial University, Lucknow, Uttar Pradesh.

Dr. Vignesh K.S, Assistant Professor, Department of Civil Engineering & Disaster Management, SRM Institute of Science and Technology, Tamil Nadu.

Dr. Sushma Guleria, Assistant Professor, National Institute of Disaster Management, Ministry of Home Affairs, New Delhi.

Basic Framework of the Proposed Undergraduate Syllabus

The paper has been designed to be offered in IVth Semester of foundation course of undergraduate programme. Most Universities at present have disaster related paper as an elective under the three-year long undergraduate level course leading to the degree of B.Sc. (Hon.). Very few universities are having disaster related paper for every stream of the foundation course of undergraduate. The undergraduate course curriculum has been prepared keeping this aspect in mind as Disaster Risk Reduction is not taught at the pre-University or the 10+2 level (except in few cities), teaching of this subject would require special attention and treatment. In view of this fact, the CDC members felt that in the IVth semester of First Year of the undergraduate course, the students of all the branches of undergraduate should be given exposure of DRR.

The Certificate Programme in Disaster Risk Reduction and Management has designed to develop the skills required for careers in disaster management. The certificate programme is designed in such a way so that after completion of first year of undergraduate degree, students will get certificate on DRRM and after two years will get degree in specialized field related to Disaster Management. The student may choose to exit after one year with certificate programme and may rejoin the second year of the UG degree in any specialized field related to Disaster Management within the next specified periods by the UGC. Hence, emphasis has been given to those aspects of Disaster which would make students aware of larger perspectives of the subject and develop skill through practical exposures in the field of Disaster Risk Reduction. This has become necessary in view of the rapid advancements in the field of Disaster Management and the necessity of keeping pace with the contemporary issues. The concept of jumping steps in the ladder has become a necessity in order to catch up with the pace in which climate is changing today. The courses have therefore been framed, keeping in mind the rapid changes in the field of disaster, need of the society to the science per se and global commitment of the country.

Special Recommendation

The expert members strongly felt that Disaster Risk Reduction as a teaching subject should be incorporated to all subjects of undergraduate as a compulsory module under foundation course. Through this report, we are urging UGC to negotiate with Universities for introduction of DRR at Higher Education level.

Foundation Course (Disaster Risk Reduction)

OPTIMUM CONTACT HOURS AND MARKING SCHEME FOR FOUNDATION COURSE ON DRR

Course: Foundation Course (Disaster Risk Reduction) **Hours**

Unit I: Concepts of Disaster and Vulnerability 15

Unit II: Disasters Intervention Practices 15

Unit III: Disaster Management 15

Practical

Total Credit: 3

Total Hours: 45

Assessment Criteria: 100 (60 Marks External and 40 Marks Internal)

Continuous Evaluation:

- i. Two Unit Test – 20 Marks (10 Marks each)
- ii. Field work / Assignments / Project Report: 20 Marks

DETAILS OF FOUNDATION COURSE SYLLABUS (DISASTER RISK REDUCTION)

Course Code	FOUNDATION COURSE (DISASTER RISK REDUCTION)	L	T	P	C
		1	1	2	3
Semester	IV	Type			
Course Title	DISASTER RISK REDUCTION	Compulsory			
Credits	3	Undergraduate			
Total Marks	100 (60 Marks External and 40 Marks Internal)				
Course Objectives:					
<ul style="list-style-type: none"> • To impart knowledge and concepts of disaster, disaster management and disaster risk reduction. • To enhance the students understanding on Hazard Vulnerability and Risk Analysis • To develop positive attitude towards practical response to different stages of disaster management by adopting advance technology and sustainable development. • To ensure disaster response skills in assessment, analysis, intervention and evaluation in the Practice of reducing disaster risk. 					
Learning Outcome:					
<p>Upon completion of this course, the student will be able to:</p> <ul style="list-style-type: none"> • Define and analysis factors contributing to disasters, threats to development, life and nature • Demonstrate, and practice disaster risk reduction activities towards sustainable development • Formulate, organize and assess disaster risk reduction activities according to the nature of disasters and factors of vulnerabilities 					
Unit: 1	Concepts of Disaster and Vulnerability				15 hours
<ul style="list-style-type: none"> - Hazards and disasters – Concepts, vulnerability and risks - Hazard and disaster type- Natural, Water-related, Pandemic and Human induced hazards and disasters - Causes and impacts of disasters- Impact on natural eco-system; physical, psychological and social impact - Disaster and financial resilience - GIS and Remote Sensing - Disaster vulnerability profile of India - Specific to geographical regions and states (as per regional significance). 					
Unit: 2	Disasters Intervention Practices				15 hours
<ul style="list-style-type: none"> - Disaster Management Cycle-Rescue, relief, rehabilitation, reconstruction, prevention, mitigation and preparedness - Disaster risk reduction (DRR) - Community based DRR, Institutions concerned with safety, Disaster mitigation and construction techniques as per Indian Standard - Early warning systems - Trauma and Stress management - First-aid and emergency procedures - Awareness generation strategies for the community on safe practices in disaster (as per regional significance) 					
Unit: 3	Disaster Management				15 hours
<ul style="list-style-type: none"> - Components of disasters management - Preparedness of rescue & relief, mitigation, rehabilitation & reconstruction - Institutional framework of disaster management in India (NDMA-SDMA-DDMA, NDRF, Civic volunteers, NIDM), - Phases of disasters/risk management and post-disaster responses - Compensation and insurance 					

<ul style="list-style-type: none"> - Applications of remote sensing & GIS in disaster management - Capacity building for disaster/damage mitigation (structural and non-structural measures). - Disaster risk reduction strategies and National Disaster Management Guidelines - Disaster Management Act-2005 - Regional issues as per regional requirement/ university can take minimum two topics as per High Powered Committee. 	
Practical exposure requirements: Field work/ Community visit and Vulnerability Mapping, Safe community planning and implementation, Mock Drill/ Regional issues as per region/university	
Total Lecture hours	45 hours
Mode of Evaluation: Continuous Assessment Test, Quizzes, Assignments, Multiple choice questions test, field work report, project report	

Books:

1. Singh, R. (2017), "Disaster Management Guidelines for Earthquakes, Landslides, Avalanches and Tsunami". Horizon Press Publications
2. Taimpo (2016), "Disaster Management and Preparedness" CRC Press Publications
3. Nidhi, G. D. (2014), "Disaster Management Preparedness". CBS Publications Pvt. Ltd.
4. Gupta, A. K., Nair, S. S., Shiraz, A. and Dey, S. (2013), "Flood Disaster Risk Management - CBS Publications Pvt. Ltd.
5. Singh, R. (2016), "Disaster Management Guidelines for Natural Disasters" Oxford University Press Pvt. Ltd.

Reference List (Reading Material as per topic):

Unit 1: Concepts of Disaster and Vulnerability

Natural hazards and disasters – Concepts, vulnerability and risks

1. Keller E.A. (2012) Introduction to Environmental Geology, Pearson Prentice Hall. Fifth Edition Types of hazards- Earthquake, flood, Tsunami, other water related hazards and events cyclone etc. (Module: 1.1; 1.2; 1.5) Download [PDF] Introduction To Environmental Geology 5th Edition Free – Usakochan PDF
2. Bolton, Patrick., Kacperczyk, Marcin. Hong, Harrison., Vives, Xavier., & Centre for Economic Policy Research (Great Britain). (n.d.). Resilience of the financial system to natural disasters. <https://media.iese.edu/research/pdfs/75322.pdf> <https://voxeu.org/article/resilience-financial-system-natural-disasters>
3. Clark, T. D. (2017). Natural Disasters, Vulnerability, and Resilience in Indigenous Communities: Literature Review and Conceptual Framework. (PDF) Natural Disasters, Vulnerability, and Resilience in Indigenous Communities: Literature Review and Conceptual Framework | Timothy David Clark -Academia.edu
4. Lindell, Michael K. (n.d.): Disaster Studies. Texas A&M University, USA. https://www.researchgate.net/publication/258131444_Disaster_Studies
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2. Ajinder Walia & Sushma Guleria (2012). Village Disaster Management Plan. National Institute of Disaster Management, New Delhi <https://nidm.gov.in/PDF/modules/village.pdf>
3. Mondal, D., Chowdhury, S., & Basu, D. (2018). Role of Panchayats in Disaster: A New Vista for Disaster Management. In *International Journal of Current Microbiology and Applied Science* (Issue 7). <http://www.ijcmas.com> <https://www.ijcmas.com/special/7/Debabrata%20Mondal,%20et%20al.pdf>
4. Building PRI Capacities for Disaster Preparedness and Management- A Training Module. UNDP & GOI (Module 2.3, 3.1, 3.2, 3.8) https://www.preventionweb.net/files/13483_Pri.pdf
5. Role of Panchayati Raj Institutions (PRIs) in Disaster Preparedness and Management- Lessons from COVID-19 Pandemic. 2020. NIRD PDR & PRIA. https://pria.org/knowledge_resource/1589187800_Report_of_PRI_webinar_on_24_04_2020.pdf

Decision support systems (DSS) for DM, Disaster risk reduction

1. Cioca, Marius & Cioca, Lucian-Ionel. (2010). Decision Support Systems used in Disaster Management. 10.5772/39452. https://www.researchgate.net/publication/221906967_Decision_Support_Systems_used_in_Disaster_Management
2. Alkhaffaf, M., & Abujamous, F. (n.d.). In Decision Support System for Disaster Management Proposed Conceptual Framework DECISION SUPPORT SYSTEM FOR DISASTER MANAGEMENT PROPOSED CONCEPTUAL FRAMEWORK
 1. <http://iraj>. http://www.iraj.in/journal/journal_file/journal_pdf/14-644-159327157127-32.pdf

3. Kumar, J. A. V., & Pathan, S. K. (n.d.). DEVELOPMENT OF DECISION SUPPORT SYSTEM FOR DISASTER MANAGEMENT-A CASE STUDY. <https://www.isprs.org/proceedings/xxxvi/part4/WG-IV-3-3.pdf>
4. Newman, J. P., Maier, H. R., Riddell, G. A., Zecchin, A. C., Daniell, J. E., Schaefer, A. M., van Delden, H., Khazai, B., O'Flaherty, M. J., & Newland, C. P. (2017). Review of literature on decision support systems for natural hazard risk reduction: Current status and future research directions. In *Environmental Modelling and Software* (Vol. 96, pp. 378–409). Elsevier Ltd. <https://doi.org/10.1016/j.envsoft.2017.06.042>

Regional issues

1. High Power Committee on Disaster Management: https://www.preventionweb.net/files/1633_ch3.pdf

Certificate Programme on Disaster Risk Reduction and Management

Course Structure of Certificate Programme on Disaster Risk Reduction and Management

About the Program:

The certificate Program in Disaster Risk Reduction and Management will be offered under graduate degree program designed to develop the skills required for careers in disaster management or as per University requirement. This course offers an opportunity to understand and adopt interdisciplinary approach to learning. Students are offered a spectrum of disaster management related aspects to have a holistic approach towards disaster management. The first part of programme is designed in such a way so that after the completion of first year, students will get Certificate in Disaster Risk Reduction and Management and after two years, will get degree in specialized field related to Disaster Management. The student may choose to exit after one year with certificate course and may rejoin the second year of the degree programme in any specialized field related to Disaster Management as specified by UGC.

Program Structure:

Year 1: Certificate Program in Disaster Risk Reduction and Management (CPDRRM)

Program Objectives (PO):

The objectives of Certificate program on Disaster Risk Reduction are:

1. To inculcate knowledge and concepts related to disaster, disaster management, disaster risk reduction.
2. To develop effective communication and presentation skills required to become a successful professional in the field of Disaster Management.
3. To acquaint with the skills of organizing, planning, controlling, team-building and leadership in the challenging environments of Disaster Management.
4. To apply the various concepts, theories and models in the area of Disaster Risk Reduction, Disaster Prevention and Disaster Response and Rehabilitation etc.

Minimum Eligibility for admission

Minimum qualification should be Secondary (12th standard) in any discipline with 55 % marks or as per requirement of University for degree programme.

Program Outcomes

Create trained professionals cadres in the field of disaster management

Admission Policy:

Admission will be made on the basis of University rules. Reservation Policy of the university will be followed.

Course Structure

Certificate Program on Disaster Risk Reduction and Management (DRRM)					
Course Code	Name of the Course	L	T	P	C
SEMESTER – I					
CP21101	Natural and Human Induced Disasters – An Overview	3	1	0	4
CP21102	Climate Change and Sustainability	2	1	0	3
CP21103	Disaster Vulnerability and Risk Assessment	3	1	0	4
CP21104	Disaster Risk Reduction and Development Planning	2	1	0	3
CP21105	Geo-spatial Technologies in Disaster Management	2	1	2	4
SEMESTER – II					
CP21201	Occupational Health and Fire Safety Management	3	1	0	4
CP21202	Emergency, Humanitarian and Incident Response System	3	1	0	4
CP21203	Community Based Disaster Risk Management (CBDRM)	2	1	0	3
CP21204	Financial Arrangement for Disaster	2	0	1	3
CP21205	Project	2	1	6	6
Total Credits					38

Detailed Syllabus

CP21101	Natural and Human Induced Disasters – An Overview	3	1	0	4
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Unit I: Introduction to Disaster Management

Disaster: Definition and concepts- Disaster Terminology - Hazard and Disaster - Natural and Human Induced Disasters Classification- Difference, Nature - Types and Magnitude- Phases of Disaster. Causes of Disaster- Impact of Disasters and Hazards -Loss of Human and Animal Life, Destruction of Ecosystem.

Unit II: Natural Hazard

Classification of Disasters- History of Disasters and Types of Natural Hazards: Earthquakes, Volcanisms, Cyclones, Tsunamis, Floods, Droughts and Famines, Landslides, Hail Storms, Heat & Cold Waves and Avalanches. - Environmental Impacts, Outbreaks of Disease and Epidemics.

Unit III: Human Induced Disaster

Classification and Types - Socio-Technical Disaster - Technological Disaster- Transportation Disaster/ Accidents- Structural Collapse- Nuclear - Industrial and other Accidents - Oil Slicks and Spills - War, Pollution – air, water, industrial pollution, Terrorist attack and Conflicts.

Books:

1. Singh, R. (2017), "Disaster Management Guidelines for Earthquakes, Landslides, Avalanches and Tsunami". Horizon Press Publications
2. Taimpo (2016), " Disaster Management and Preparedness" CRC Press Publications

References:

1. Kumar, S. D. (2007) "Climate Change – An Indian Perspective", Cambridge University Press India Pvt. Ltd.
2. Thakur, A. K. and Patil, G. V. K (2012) Disaster Management and Climate Change, NDMA, Govt. of India, New Delhi.

CP21102	Climate Change and Sustainability	2	1	0	3
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UNIT I - Introduction to Climate Change

Global Warming – Causes and its Impact - Climate Change - Climate variability - Climate shifts - Global Wind Systems – Cloud Formation and Monsoon Rains – Storms and Hurricanes - The Hydrological Cycle – Global Ocean Circulation – El Nino and La Nina phenomena – ENSO- Indian Ocean Dipole –The Earth's Natural Green House Effect – Green House Gases and air pollution.

UNIT II - Projections of Climate Change

Trends and projections of Climate Change: Global, regional and local changes in patterns of temperature, precipitation and sea level rise – 4th and 5th IPCC reports-IMD reports on climate change and projections- Observed effects of Climate Changes – Patterns of Large Scale Variability – Impacts of Climate Change on various sectors: Water – Agriculture includes animal husbandry and Fisheries, Forestry, biodiversity and Ecosystem – Human Health – Industry, Settlement and Society – Methods and Scenarios – Projected Impacts for Different Regions.

UNIT III - Sustainability

Defining Development-Millennium Development Goals – Definition of sustainability – Environmental, Economic and Social dimensions of sustainability -Sustainable Development Models – History and emergence of the concept of sustainable development - Rio Principles of Sustainable Development – Precautionary Principle-Polluter Pays Principle – Role of Civil Society, Business and Government -Natural Step- Peoples Earth Charter – Business Charter for Sustainable Development.

Books:

1. Misra, S. P. and Pandey, S. N. (2014), “Essential Environmental Studies” 4th Edition Anne books Pvt. Ltd.
2. Clayton, B. D. and Bass, S. (2002), “Sustainable Development Strategies- a resource book”, Earthscan Publications Ltd. London.
3. Mulder, K. (2006), “Sustainable Development for Engineers - A Handbook and Resource Guide”. Green Leaf Publishing.

References:

1. MoEF “ Sustainable Development in India –stocktaking in the Run up to Rio plus 20”, Ministry of Environment and Forests, Government of India, New Delhi. 2012,
2. UNEP , Towards a Green Economy: Pathways to Sustainable Development and Poverty Eradication, www.unep.org/greeneconomy, ISBN: 978-92-807-3143-9, 2011
3. World Bank “Inclusive Green Growth – The pathway to Sustainable development, World Bank-Washington DC, 2012

CP21103	Disaster Vulnerability and Risk Assessment	3	1	0	4
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UNIT I - Introduction to Risk

Introduction to risk evaluation; Fundamentals and methodologies for risk analysis, assessment, evaluation and management- Definitions and Overview of risks and dangers-Assessment of risks for different disaster types, extreme event and environmental health risk, carcinogenic materials and environment. Discussion on selected case studies to analyze the potential impact of disasters.

UNIT II – Risk and Vulnerability Assessment

Data model for collection of information. Risk assessment applications for disaster mitigation and management problems, Training in crisis management - design of risk management, different type of risks and solutions, concept of vulnerability, analysis and preparedness - Prevention and response mechanism, emergency management teams, National and International disaster recovery policies.

UNIT III - Perspectives and Strategies

Gender Issues- Understanding gender issues, Gender roles in society, Myths and facts in disaster perception-Guiding principles- gender sensitive planning and programming in Disaster management – Basic approaches in gender issues, Practical & strategic needs, Tools for analyzing gender issues, Applying gender lens to policies & programs.

Books:

1. Wilson, R. and Crouch, A. C. (1987), "Risk assessment and comparisons: An Introduction". CRC Press Pvt. Ltd.
2. Petak, W. J. and Atkisson, A. A. (2010), "Natural Hazard Risk Assessment and Public Policy: Anticipating and Unexpected". Springer New York.

References:

1. Freeman, H. M. (1989), "Standard Handbook of Hazardous Waste treatment and Disposal", Tata McGraw Hill, New York.
2. Muckhopadhyaya, A.K. (2005), "Crisis and disaster management: tubercance and aftermath", Newage International Publications, New Delhi.
3. William, P. L. and Burson, J. L. (1985), "Industrial Toxicology, Safety and Health Applications in the work place". Van Nostrand Reinhold, New York.

CP21104	Disaster Risk Reduction and Development Planning	2	1	0	3
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UNIT I- Disaster Management Cycle

Disaster Management Cycle- Culture of Safety, Prevention, Mitigation and Preparedness- Structural and Non- structural measures - Responsibilities of Community- Panchayati Raj Institutions- Urban Local bodies- State, Centre and other stake holders.

UNIT II – Hazard Profiling

Hazards and Vulnerability profile in India- Components of disaster relief- Institutional arrangements DM act and policy – Important institutional arrangements- State armed forces- Civil Defense and Home guards- SDRF.

UNIT III – Disaster Management Planning

Inter-relationship between disaster and development-factors affecting disaster vulnerability- Differential impact- Impact of development projects – Dam construction induced seismic

activity - Dam failure induced disaster and embankment breaching - Construction and development induced landslides - Human Population and the environment - Population growth variation among nations - Population explosion- Family welfare program - Human Rights - Women and Child welfare.

Books:

1. Nidhi, G. D. (2014), “Disaster Management Preparedness”. CBS Publications Pvt. Ltd.
2. Gupta, A. K., Nair, S. S. (2014), “Climate Change adaptation and Disaster Risk Reduction into District Level Development Plans” - NIDM report

References:

1. <http://www.igcp585.org/home> (Submarine Mass Movements and Their Consequences; EMARSHAL project Earth's continental Margins assessing the geo Hazard from submarine Landslide)
2. Rajamanickam, G.V.(1990) Sea level variation and its Impact on Coastal environment Tamil University publication-Thanjavur-pp.452.

CP21105	Geo-spatial Technologies in Disaster Management	2	1	2	4
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Unit I: Basics of Remote Sensing

Remote Sensing: History, Development, Definition, Concept & Principles, Electromagnetic Radiation (EMR) and Its Characteristics, Wavelength Regions and their Significance - Interaction of EMR with Atmosphere and Earth's Surface: Absorption, Reflectance and Scattering - Spectral, Spatial, Temporal and Radiometric resolutions; Sensors and Platforms; Concept of Satellite, sensor, orbit. Satellite image and various interpretation techniques, digital image processing techniques.

Unit II: Basic Concepts of GIS and GPS

Definition, Philosophy & Historical evolution of GIS, Spatial vs. non-spatial data, Components of GIS, Spatial data models – Raster and Vector; advantages & disadvantages, - Introduction to Global Navigation Positioning System, Various Global/Regional Satellite constellations, NAVSTAR GPS signals, Geo- positioning - Datum/Ellipsoid - Global Datum vs. Indian Geodetic Datum, Coordinate Systems, Transformation of coordinates.

Unit III: DRR using GIS and RS (Practical)

Hazard Evaluation and Zonation – Risk and Vulnerability Assessment, Damage assessment – Land use planning and regulation for sustainable development, Practices for Disaster Risk Management (Hydrological, Environmental and Health); Case Studies.

Books

1. Lillesand, Thomas M. and Kiefer, Ralph, W. (2007). “Remote Sensing and Image Interpretation”, 4th Edition, John Wiley and Sons, New York

2. George Joseph & C. Jeganathan (2018). Fundamentals of Remote Sensing 3rd edition, Universities Press, India
3. Roy, P.S. (2000). Natural Disaster and their mitigation. Published by Indian Institute of Remote Sensing (IIRS).
4. Anji Reddy, M. (2004) Geoinformatics for environmental Management. B. S. Publication.
5. Burrough, Peter A. and Rachael McDonnell (1998). "Principles of Geographical Information Systems" Oxford University Press, New York.

References

1. Bhattacharya, T. (2012). Disaster Science and Management, McGraw Hill Education (India) Pvt. Ltd. ISBN-10: 1259061302; ISBN-13: 978-1259061301
2. Robert R. G. (1991), "Manual of Remote Sensing, Vol. I, American Society of Photogrammetry and Remote Sensing, Falls Church, Virginia, USA
3. Paul Longley, Michael Good child, David Maguire and David Rhind (2005). Geographical Information Systems. Principles, Techniques, Applications and Management. John Wiley & Sons.

CP21201	Occupational Health and Fire Safety Management	3	1	0	4
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UNIT I – Occupational Hazard

Occupational Hazards – Physical Hazards, Chemical Hazards and Biological Hazards – Radiation Hazards - Psychological Hazards – Indian Occupational Safety Scenario – Occupational Diseases – Acute effect and Chronic effect – Industrial Hazardous diseases.

UNIT II – Fire Prevention and Control

Active and passive fire control design of buildings- burning properties of materials and fire design - theoretical fire extinguishing mechanism and appraisal of applications of active fire protection systems, and detail fire behaviour of materials; Legislation knowledge with respect to fire safety management - regulations in relation to the fire services installation and the recommended practices for buildings.

Unit III – Safety Management

Exposure Assessment – Ergonomics – Medical Surveillance – Industrial Hygiene – Personal Protective Equipment's - Industrial Safety acts and regulations – Case Study.

Books:

1. Reepunjaya .S ., (2017) "Occupational Health Safety and Waste Management" . Oxford books Publishers Pvt. Ltd.
2. Schroll, R. C. (2002). Industrial fire protection handbook. (2nd ed.). CRC Press: Boca Raton, FL. ISBN: 1587160587
3. Cote, A. & Bugbee, P. (1988). Principles of fire protection. National Fire Protection Association.

References:

1. Schroll, R. C. (2002). Industrial fire protection handbook. (2nd ed.). CRC Press: Boca Raton, FL. ISBN: 1587160587
2. Cote, A. & Bugbee, P. (1988). Principles of fire protection. National Fire Protection Association.
3. Dunn, V. (1988). Collapse of burning buildings. Fire Engineering, APennWell Publication, New York, NY.
4. Planer, R. G. (1979). Fire loss control, a management guide. Marcel Dekker, Inc. New York.

CP21202	Emergency, Humanitarian and Incident Response System	3	1	0	4
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UNIT I: Emergency Response

Emergency response – Standard Operation Procedure (SOP) for disaster response; Information Management System; Warning Dissemination; Evacuation; Search and Rescue operations; Relief operations; Emergency Operation Center (EOC); Resource Management & Networking – India Disaster Resource Network; Role of Disaster Response Forces and Community Based Organisations (CBO) in emergency response mechanism; Incident Response System.

UNIT II: Communication System

Disaster and Communication: Role of Communication in Disaster, - Nature and Scope of Communication- Sender and Receiver Oriented Views-Models and Processes of Communication as Applied to Disaster Management-Seven Traditions of Communication and Its relevance to Disaster Management-Normative Perspective on Disaster Communication.

UNIT III: Communication Risk Assessment

Risk Communication Models of Risk Communication, Theoretical Basis for Risk Communication-Risk Reduction Communication Cycle, Disaster Warnings as Risk Communication-Risk Perception, Hazard Awareness as Risk Communication-Cultural Influences on Risk Communication, Cultural Cognition Theory of Risk-Approaches to Influencing Hazard Adjustment and Adoption.

Books:

1. Calif, T. O., "Effective Health Risk Messages: A Step-By-Step Guide. 1st Edition SAGE Publications, Inc. 2001
2. Singh, R. "Risk Communication: A Handbook for Communicating Environmental, Safety, and Health". Oxford University Press Pvt. Ltd. (2016)

References:

1. Heinemann, B. (2014), "Disaster Communications in a Changing Media World" 2nd Ed. Amsterdam,
2. Disasters and the Media. (2012) Peter Lang Publishing Inc

CP21203	Community Based Disaster Risk Management (CBDRM)	2	1	0	3
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UNIT I– Community Based Management

Community and social solidarity; Role of local community in Disaster Management, Disaster resilient community, habitualization and culturalization of Disaster Management practices, Community based disaster management practices – case studies. Gender perspective to disasters, Utilization of public property during disasters, Community response to disasters.

UNIT II - Need Based Assessment

Trends in Resource Mobilization for Disaster Management - Community Risk Assessment - Assessment of Disaster Risk Communication Needs - Damage, Loss and Needs Assessment - Community Risk Assessment Tool - Community Disaster Reduction Planning.

UNIT III – Implementation, Monitoring and Evaluation

Community Organizing - Community Training - Community Disaster Information Center - Disaster Risk Communication by Local Authorities - Early Warning by Local Authorities - Community Disaster Reduction Fund - Role of Local Authorities in Community-based Hazard Mitigation - Mitigation of Hydro- meteorological Hazards - Mitigation of Geological Hazards - Monitoring and Evaluation.

Books:

1. Miller, "Community Disaster Recovery and Resiliency" CRC Press Pvt. Ltd.
2. Shah, Rajib and Okajaki Kenji, Sustainable Community-based Disaster Management Practices in Asia: A User's Guide, UNCRD, Kobe, Japan, 2004

References:

1. Lerbinger, O. (1986), "The Crisis manager, facing risk and responsibility" Lawrence Erlbaum associates.
2. Hodgkinson, P. K. (1998), "Coping with Catastrophe, A handbook of post disaster psychological after care" Routledge Press Pvt. Ltd.
3. Medury, Uma, Coping with Disasters: A Community-Based Approach IN: Disaster Mitigation: Experiences and Reflections, Pradeep Sahni, AlkaDhameja and Uma Medury (Eds.) Prentice Hall of India Pvt Ltd. New Delhi, 2001

CP21204	Financial Arrangement for Disaster	2	0	1	3
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UNIT – I – Financial Planning for Natural Hazards

Identifying the natural disasters with Potential Financial Implications in the Community; Measuring Local Government Financial Vulnerability to Natural Disasters; Measuring the Financial Capacity of Local Governments to Address Natural Disasters; Identifying Regional Financial Vulnerabilities.

Unit –II - Financial Resilience

What is Financial Resilience, What is Risk Management and Financing. Risk and Financial Vulnerability Assessment. Financial capacity and Disaster Risk Financing. Financial Regulatory framework and monitoring of risk finance. Policy making on Disaster Risk Financing. Risk awareness and financial preparedness. Budgetary control over disaster Risk Financing. Tools of Financial Resilience.

UNIT – III – Disaster Financial Management

Disaster Financial Management Team Composition - cash flow management, debt monitoring, , risk avoidance, disaster assessment and expense reimbursement pertaining to damage, emergency protective measures; Project and Portfolio Management - performing financial analysis; and maintaining accurate financial records and documents in preparation for audits; Knowledge of Procurement and Contracting Practices - performing financial analysis; and maintaining accurate financial records and documents in preparation for audits.

UNIT – IV - Disaster Financial Management Activities

Disaster Financial Management Activities - Pre-Disaster Activities - Initial Post-Disaster Activities - Longer-Term Post-Disaster Activities. Disaster Financial Accounting Systems and Management Processes – Disaster Financial Assistance Programs- Case studies.

Books

1. L.M. Bower., W.J.W. Botzen., J.C.J.M. van den Bergh., and C.J.H. Aerts “Financial arrangements for disaster losses under climate change”
2. Disaster Financial Management Guide (2020) Federal Emergency Management Agency

References

1. Botzen, W.J.W. and Van den Bergh, J.C.J.M. (2009). Managing natural disaster risk in a changing climate. *Environmental Hazards*, 8 (3): 209-225
2. Bower, L.M., Crompton, R.P., Faust, E., Höppe, P. &Pielke Jr., R.A. (2007). Confronting disaster losses. *Science*, 318, 753

CP21205	Project	2	1	6	6
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Project provides (a) application of skills and (b) practical / empirical experiences for the students. This course carries three credit as the case may include oral presentation and submission short / long scientific article. This is done by way of fulfilling the 50-50 skills and hands-on exercises for the courses designed and have to be done in the Geospatial laboratories. The topic may be experimental or analytical or case studies. At the end of the semester, a detailed report on the work done should be submitted which contains clear definition of the identified problem, detailed literature review related to the area of work and methodology for carrying out the work.

About the Institute

National Institute of Disaster Management (NIDM) was constituted under an Act of Parliament with a vision to play the role of a premier institute for capacity development in India and the region. The efforts in this direction that began with the formation of the National Centre for Disaster Management (NCDM) in 1995 gained impetus with its redesignation as the National Institute of Disaster Management (NIDM) for training and capacity development. Under the Disaster Management Act 2005, NIDM has been assigned nodal responsibilities for human resource development, capacity building, training, research, documentation and policy advocacy in the field of disaster management.

NIDM is proud to have a multi-disciplinary core team of professionals working in various aspects of disaster management. In its endeavour to facilitate training and capacity development, the Institute has state-of-the-art facilities like class rooms, seminar hall and video-conferencing facilities etc. The Institute has a well-stocked library exclusively on the theme of disaster management and mitigation. The Institute provides training in face-to-face, on-line and self-learning mode as well as satellite based training. In-house and off-campus face-to-face training to the officials of the state governments is provided free of charge including modest boarding and lodging facilities.

NIDM provides Capacity Building support to various National and State level agencies in the field of Disaster Management & Disaster Risk Reduction. The Institute's vision is to create a Disaster Resilient India by building the capacity at all levels for disaster prevention and preparedness.



National Institute of Disaster Management
(Ministry of Home Affairs, Government of India)

Plot No.15, Pocket 3, Block-B, Sector-29, Rohini, Delhi-110042
Email: ed.nidm@nic.in | Website: <https://nidm.gov.in>